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International Journal of University Teaching and Faculty Development

Published four times per year, the *International Journal of University Teaching and Faculty Development* is an international and multidisciplinary Journal concerned with teaching for students at university level and faculty development. The Journal will look at how teaching and research can be brought into a closer relationship. The Journal welcomes research-based articles on the practice of higher education, specifically those manuscripts that span a wide range of teaching and faculty development issues and trends occurring internationally. They may, for example:

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A STRATEGIC APPROACH TO THE SCHOLARSHIP OF CURRICULUM LEADERSHIP IN A RESEARCH-INTENSIVE UNIVERSITY CONTEXT: THE ART, SCIENCE, AND POLITICS OF IMPLEMENTATION

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ABSTRACT

This article draws on research and experience to provide a theoretical framework for a strategic approach to the scholarship of curriculum leadership (SoCL) in research-intensive university (RIU) contexts. In the global context of undergraduate and graduate degree program reforms, we argue that the scholarship of curriculum leadership has significant benefits for Program Directors/curriculum leaders at RIUs: SoCL provides a strategic foundation for both quality assurance and quality enhancement of undergraduate and graduate degree programs; SoCL is strategically aligned with RIU mandates for sustained and productive scholarly activity; SoCL fosters an institutional culture of educational scholarship aimed at enhancing effective, efficient and strategically-aligned curricula and pedagogical practices; and SoCL has the potential to have a significant and strategic impact on student learning. Based on fostering networked improvement communities around curriculum inquiry, we reason that SoCL is central to effective, efficient and high quality undergraduate and graduate degree program reform in RIU contexts. Challenges to and applications of SoCL are provided that attend to the art, science and politics of implementation.

Keywords: scholarship of curriculum leadership, curriculum communities of practice, research-intensive universities, strategic institutional supports

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INTRODUCTION

Research-intensive universities (RIUs) around the world are increasingly recognizing the strategic importance of effective curriculum leadership and its scholarship on their campuses. Effective curriculum leadership is required to spearhead excellence and respond to widespread institutional and undergraduate/graduate program reform efforts that are fundamentally changing RIUs on a global scale (Hubball & Burt, 2004; Hubball, Pearson, & Clarke, 2013; Liu, 2015; Mohrman, Ma & Baker, 2008). However, the enactment of localized scholarship directed at supporting and enhancing curricula leadership practices in RIUs remain very much in their infancy (Hubball, Clarke, Webb & Johnson, 2015; Quinlan, 2014). The intention of the scholarship of curriculum leadership (SoCL) is to better understand and improve curriculum practices, while also enhancing their effectiveness and impact on student learning. In this paper, we attempt to provide the beginnings of that research and argue that SoCL has significant benefits for Program Directors/curriculum leaders at RIUs:

- SoCL provides a strategic foundation for both quality assurance and quality enhancement of undergraduate and graduate degree programs;
- SoCL is strategically aligned with RIU mandates for sustained and productive scholarly activity;
- SoCL fosters an institutional culture of educational scholarship aimed at enhancing effective, efficient and strategically-aligned curricula and pedagogical practices;
- SoCL has the potential to have a significant and strategic impact on student learning.

This article draws on the authors' collective research, supervision and leadership experiences over a 17-year period related to SoCL at The University of British Columbia (UBC), Canada, and with multinational senior educational leaders from around the world. This includes mentorship of hundreds of senior educational leaders engaged in the scholarship of curriculum leadership (SoCL). Research and practical experiences in diverse RIU contexts provide a scholarly underpinning to SoCL, as well as practical examples that attend to the art, science and politics of implementation. Further, case study examples are provided from implementation experiences in the Faculty of Pharmaceutical Sciences at UBC.

THEORETICAL UNDERPINNINGS OF CURRICULUM LEADERSHIP

Effective curriculum leadership is a complex and multifaceted process (Hubball, Pearson & Clark, 2013). Traditionally, there has been a lack of systematic and strategic preparation of knowledgeable curriculum leaders in RIU settings. A reliance on ad-hoc experiential curriculum leadership activities in RIU contexts often result in less than optimal curriculum practices, student learning experiences, and related scholarship. Scholarly approaches to curriculum leadership are part of a larger process of current institutional and pedagogical reform in RIU contexts (Ambrose et al., 2010). While research-informed and evidence-based practices are not new to these settings, scholarly approaches to curriculum leadership often receive much less attention in this regard than disciplinary-based research endeavours (Boyer, 1990; Pearson & Hubball, 2012).

We argue that a scholarly approach to curriculum leadership, as with many forms of inquiry, is based on three underlying assumptions about knowledge; (1) it is personally constructed, (2) it is socially mediated, and (3) it is inherently situated. Each assumption provides directions and cautions for curriculum leadership in diverse RIU contexts. For example, the first assumption cautions that individual conceptions of the ‘good’ in curriculum leadership will always be part of how curriculum leadership is constructed and understood within the disciplinary context. Therefore, curriculum leaders need to make explicit their own assumptions, beliefs, and intentions about effective curriculum leadership as a first step to an authentic, inclusive, and a productive conversation about curriculum practices. The socially mediated dimension of knowledge construction speaks to the importance of arriving at a shared understanding of effective curriculum practices and how it might be implemented within the context of the institutional/professional/disciplinary context. Coming to a shared understanding requires open dialogue and active participation by key stakeholder representatives (Wenger, McDermott, & Snyder, 2002). The co-constructed knowledge that arises from such engagement is essential to a curriculum leadership that upholds and honours knowledge as being always complex and dynamic (Dawson & Hubball, 2014; Stacy, 2000). Finally, curriculum leadership is inherently situated within disciplinary traditions, learning environments, and political landscapes that frame the particular contexts in which the curriculum takes place. Scholarly approaches to curriculum leadership must, therefore, have regard for the historical, political, and contextual factors that characterize curricula practices within those contexts. In short, curriculum leadership and context are inextricably linked and determine each other in significant ways. Honouring the situated nature of knowledge is, therefore, a recognition that curriculum leadership exists within broader communities of practice (Lave & Wenger, 1991; Shulman, 2005). In sum, these three characteristics of knowledge construction are essential for developing scholarly approaches to curriculum leadership within RIU contexts.

The scholarship of curriculum leadership (SoCL) builds on scholarly approaches to curriculum leadership and combines effective leadership with practice-based inquiry for curriculum leaders in RIU contexts. In order to sustain and enhance high quality, strategically-aligned, research-informed, and evidence-based curriculum practices, SoCL emphasizes a familiarity with the research literature, practice-based inquiry, diverse research methodologies, and venues for peer reviewed dissemination, as well as the expectations for strategic organizational impact (Arthur, Waring, Coe, & Hedges, 2012; Hubball, Lamberson, & Kindler, 2012). Thus, “curriculum leadership” takes the form of scholarship through the introduction of systematic rigorous inquiry; networked improvement communities; symbolic and cultural changes to the normative context that governs academic work; and dissemination of theory and practice in peer reviewed fora (Bryk, Gomez, & Grunow, 2011; de la Harpe & Mason, 2014; Friedman, 2006; Grimmatt, 2014). Diverse perspectives of SoCL are shaped by particular cultural (i.e., global, regional), institutional (i.e., university-specific), disciplinary (i.e., signature practices), epistemological (i.e., how we know what we know), methodological (i.e., alignment of the approach with the conditions), and ethical (i.e., confidentiality and anonymity) considerations (Hutchings, Huber, & Ciccone, 2011). Further, knowledge construction is ontologically complex and draws upon appropriate context-specific frameworks.

In complex RIU contexts with diverse stakeholders and challenges, and varying levels of support (e.g., availability of strategic resources and expertise), SoCL assists curriculum

leaders to ensure that “the whole” far exceeds the sum of the individual parts while seeking to better understand, examine, improve, and disseminate evidence-based curriculum practices in peer reviewed fora (Green, 2008). Thus, SoCL offers significant benefits for RIUs and curriculum leaders at various institutional levels. The imperative for SoCL is compelling, especially when one considers that curriculum leaders are expected to respond to and enhance undergraduate and/or graduate degree program profiles within and beyond the communities they serve.

In this paper we use the term ‘SoCL,’ by which we mean a distinctive form of practice-based scholarship that is directed at Program Directors/curriculum leaders in RIU settings. SoCL has an explicit transformational agenda and engages networked improvement communities centered on curriculum inquiry within and across diverse disciplinary settings in order to sustain and enhance effective, efficient and high quality undergraduate and/or graduate programs.

METHOD

A Framework to Enhance a Strategic Approach to SoCL in RIU Contexts

Centred on SoCL, the following flexible heuristic framework is designed to enhance strategic approaches to curriculum leadership (Figure 1).

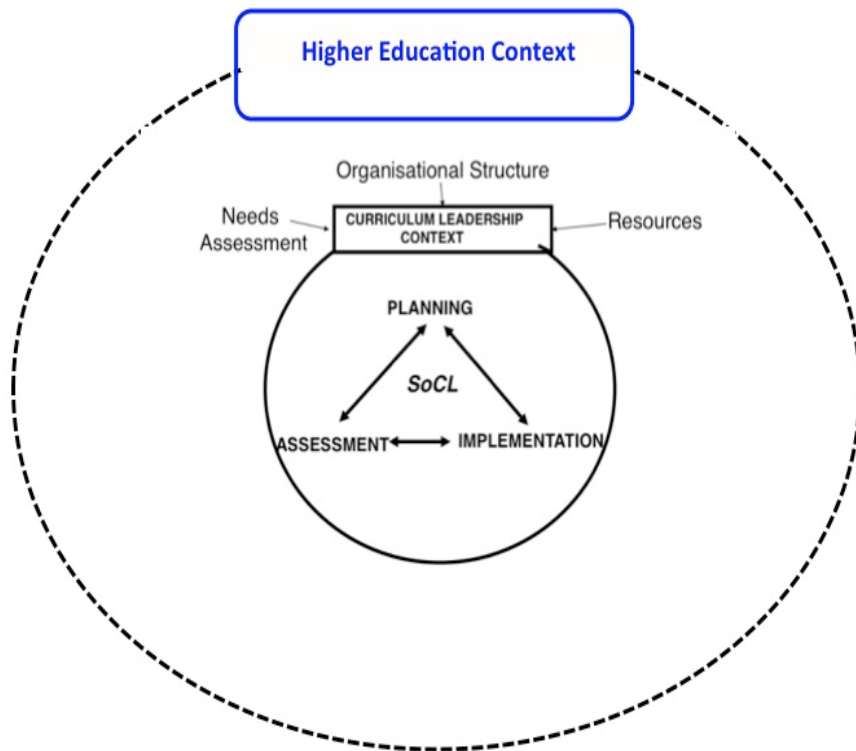


Figure 1. A framework to enhance strategic approaches to SoCL in diverse RIU contexts.

This iterative framework has been used in diverse higher education settings for a variety of professional development initiatives for educational leaders, for example: International Program for the Scholarship of Educational Leadership (SoEL); Peer Review of Teaching Leaders Program; Curriculum Scholarship Leaders Program; Seconded Master's Teachers Program; and UBC's GSS Leaders Program (Hubball & Burt, 2004; Hubball & Clarke, 2010; Hubball, Clarke, & Poole, 2010; Hubball, Clarke & Pratt, 2013; Hubball & Edwards-Henry, 2011; Hubball & Pearson, 2009; Hubball, Pearson, & Clarke, 2013; Hubball, Clarke, Webb & Johnson, 2015; Wang, Peng, Pearson, & Hubball, 2011). This framework takes into account diverse ontological, epistemological, methodological, and ethical considerations for SoCL and invites program leaders to draw upon appropriate context-specific frameworks to enhance high quality learning-centered curricula and pedagogical practices.

Context. Context takes into account relevant scholarly literature and the 'big picture' factors that support optimal environments for curriculum leadership. These factors include institutional and discipline-specific strategic planning goals, political structures, promotion and tenure expectations, prioritized resources available for curriculum enhancement, and strategically-aligned professional development for institution/Faculty-level curriculum leaders (Hubball & Gold, 2007).

Planning. Planning takes into account all components of the conceptual framework to develop strategic long-term, intermediate, and short-term curriculum goals (e.g., global and specific student learning outcomes). For example, curriculum reform has different starting points, histories and stages of change. Engaging key stakeholder representatives (e.g., through townhall meetings, email, sub-group meetings) to articulate key student learning outcomes within and across disciplinary structures is critical to program implementation (Oliver, 2013).

Implementation. Implementation takes into account all components of the conceptual framework to implement progressive and strategically aligned (curriculum and pedagogical) experiences that respond to the diverse needs and circumstances of the curriculum context. These include fostering curriculum communities of practice, offering technology-enabled professional development and student learning experiences that can support progressive curriculum goals and outcomes (Pearson & Hubball, 2012).

Assessment. Assessment takes into account all components of the conceptual framework to focus on strategic and authentic assessment of curriculum practices (e.g., indicators/evidence of program success and indicators/evidence of student LO's). These include both formative and summative curriculum assessments (Hubball & Burt, 2007). Drawing on the scholarly literature, formative assessment may occur throughout the academic year and take the form of program self-study or feedback from key stakeholder representatives (faculty, students, administrators, and external reviewers). Summative assessment is formal and evaluative in nature and, for purposes of program accreditation, may include external reviewers. Individuals participating in curriculum assessment should be knowledgeable and informed by the scholarly literature and trained in program peer review methodology.

Thus, Figure 1 provides a useful framework to explore and enhance the strategic impact of curriculum leadership practices within and across diverse disciplinary settings. Through inquiry, this framework invites institutional/discipline-specific Faculty-level curriculum leaders to engage in both scholarly approaches to and the SoCL through iterative phases of planning, implementation, and assessment. The above framework has been used to enhance SoCL over a 17-year period with senior educational leaders from around the world. Case

study examples in the Faculty of Pharmaceutical Sciences at UBC, illustrate how a strategic approach to SoCL was implemented in this setting.

RESULTS

UBC's RIU Context. The University of British Columbia is routinely ranked among the top 40 universities in the world (Times Higher Education, 2014). UBC, located in Vancouver, Canada, educates a student population of 50,000 and offers over 250 graduate degree programs through 12 Faculties, 2 Colleges, and multiple Schools (see <http://www.ubc.ca/>). It is among the top 3 universities in Canada. The University's *Place and Promise 2020* visioning document professes a commitment to student learning and the application of new research to enhance strategically-aligned and evidence-based curricula and pedagogical practices within and across its diverse disciplinary contexts (University of British Columbia, 2012). For example, stated goals are:

to ensure faculty are informed by leading edge research on how people learn; to simplify and streamline program requirements and course prerequisites whenever possible to enhance flexibility and self-directed learning; to ensure that periodic academic reviews include an assessment of educational outcomes for all programs; and to further align the University rewards and recognition systems with student learning goals (p. 11).

According to UBC's Promotion and Tenure (P&T) guidelines, the scholarship of teaching (including curriculum leadership) and one's professional contributions within the Professoriate stream rank equally with traditional scholarly research in career progression (University of British Columbia Human Resources, 2014). Criteria for evaluating the scholarship of teaching include factors such as originality or innovation, demonstrable impact in a particular field or discipline, peer reviews of scholarly contributions to teaching, dissemination in the public domain, and substantial and/or sustained use by others. Similarly, the evaluation of professional contributions takes into account evidence that might be viewed as demonstrating leadership, rare expertise, or outstanding stature within a field or discipline. In parallel to the rank of Full Professor in the traditional research stream, the new Professor of Teaching rank, established at UBC in 2011, requires evidence of outstanding achievement in educational leadership provided within the university and elsewhere to advance innovation and excellence in teaching; contributions to curriculum development and renewal within the unit or Faculty; scholarly teaching with impact inside and outside the unit; and applications of and contributions to the scholarship of teaching and learning (University of British Columbia Human Resources, 2014, Sections 3.1.6 to 3.2.6, 3.4.1, and 4.4). Thus, in terms of curriculum leadership activities, UBC's P&T guidelines for career advancement enable curriculum leaders to engage SoCL under the scholarly and educational leadership streams (Hubball, Clarke, Huang Hoon & Grimmett, 2015).

Disciplinary context for Curriculum reform in UBC's Faculty of Pharmaceutical Sciences. The Faculty of Pharmaceutical Sciences at the University of British Columbia engaged in a dramatic overhaul and reform of its undergraduate pharmacy program beginning in 1997 to an outcomes based curriculum under the leadership of a newly appointed Dean. A small Faculty, Pharmaceutical Sciences resembles more of a medium-sized department at

UBC with about 40 FTE faculty, of which about 30 are professorial-stream research faculty and 10 instructors/lecturers. The undergraduate pharmacy program accepted students after a minimum of one year PSE followed by four years in the B.Sc (Pharm) program, with approximately 130-140 students in each year. The final year of the program included external clerkships and final nationwide Board examinations, required for licensure.

The mandate for a complete curriculum reform was very clear, deriving from forces for change which were a mix of external and top-down and internal or bottom-up. The external factors included a consistently poor performance by UBC students in the final Board examinations, compared to the other 8 Faculties of Pharmacy across the country and looming accreditation standards for all pharmacy programs that were requiring competency- or outcomes-based curricula and program level assessment strategies. However, to a large extent, the most significant forces for change were the pharmacy students themselves, who felt they were leaving the program poorly prepared for a pharmacy practice environment of patient-focused pharmaceutical care, in which there was a need to think critically, be able to solve complex drug-related problems, and communicate effectively with patients and health care providers. Most faculty members and many preceptors training our students in their external clerkships expressed a broad range of views related to the curriculum, some similar to the students' perspectives but also included concerns about extraordinarily content-heavy courses that were primarily lecture-based, with minimal opportunities for students to work in small tutorial groups on patient focused cases to solve drug-related problems, and insufficient opportunities for direct exposure to pharmacy practice. Hence, the first critical element for creating an environment conducive to curriculum reform was present in the Faculty, powerful contextual factors driving change.

Academic leadership. Academic leadership is a critical factor for effective curriculum reform. In this setting, the leadership team included the Dean of the Faculty, the Chair of the Curriculum Review Committee (CRC) and the educational consultant, along with strong support from the Institutional level leadership, the Provost and Vice President Academic. Developing a radically new, outcomes-based curriculum from the ground-up requires an openness and readiness for the necessary shift in culture among the faculty and students, to one that is ready to embrace change, fosters collaboration, encourages debate and discussion and supports effective decision making. Strong leadership of the process is essential, with a team that is passionate about, and committed to, teaching and learning.

The Dean selected the Chair to take on the leadership of the CRC for several reasons. She was a senior member of the faculty, a full professor with a strong research program and a clear passion for teaching, plus a track record of having contributed to, and frequently led, various Faculty initiatives, and she had credibility across the faculty and with the students. The Chair also had relatively balanced views on the merits and weighting in the overall curriculum of the two "camps": one being the basic and pharmaceutical sciences, and the other, clinical sciences and pharmacy practice. Both a willingness and ability to get things done and drive the faculty towards making decisions was also going to be a critical asset. The stages from establishment of the CRC through to final faculty approval of the outcomes based curriculum were as follows: (1) Faculty mobilization and ability based outcomes development (2) Disciplinary phase and (3) Integration phase. By design, and for purposes of faculty renewal, the multi-year process of implementation of the outcomes-based pharmacy program was undertaken with new leadership of both the Faculty and the curriculum committee.

The Chair recruited assistance from a curriculum consultant and scholar in UBC's Faculty of Education. The consultant's research and practice expertise focused on the scholarship of curriculum and pedagogical leadership in multi-national and multidisciplinary research-intensive university contexts. The consultant's role was to assist the Chair with analysis of strategic educational goals; outcomes-based undergraduate program reform; authentic assessment of student learning outcomes and teaching excellence; and, alignment of strategic professional development support in the Pharmaceutical Sciences context. For example, the curriculum consultant led a cohort of educational leaders (including the Chair and curriculum committee personnel from the Faculty of Pharmaceutical Sciences) in UBC's Faculty SoTL Leadership Program. This customized professional development program focuses on the scholarship of educational leadership and is designed for academic leaders with educational roles and responsibilities such as curriculum renewal, program, reform, quality assurance and pedagogical leadership. Since 1998, over 400 program graduates from UBC and partner universities around the world, have graduated from this program with significant experience and expertise in new forms of inquiry and scholarship (including SoCL).

Stage 1: Faculty Mobilization and Ability-Based Outcomes Development

Faculty buy-in to the process and an early assessment of needs for the new program comprised the first part of this stage, aided by access to resources and a useful organizational structure of the faculty, described below.

Needs assessment. As a starting point, the CRC Chair conducted one-on-one informal interviews with all faculty members and several pharmacy practitioners (clerkship preceptors), with only two questions being asked. Firstly, in your view, what are the key problems with the current curriculum? Secondly, what are the top three things that need to change? Upon completion of the interviews, common themes and directions were summarized. Faculty membership of the CRC was established by calling for volunteers from both basic/pharmaceutical and clinical sciences fields and pharmacy practice. Two graduate student volunteers and two undergraduates from each of the 4 years were selected. The Chair announced the opportunity to participate in the CRC in classes and requested self-nominations in writing. Students were asked to make an ongoing commitment to the process and selected following brief interviews. Three pharmacy clerkship preceptors were invited onto the CRC. The full CRC complement was 18 members. The student members of the CRC initiated their own survey and polled the members of all years with almost 100% participation, asking the same two questions as noted above. Very consistent and common themes were obtained from all years and reinforced what we already knew were the key weaknesses and issues with the current curriculum and also what needed to change.

Resources: The expertise, coaching and mentoring provided by the curriculum consultant to the Chair, CRC members and faculty via workshops/seminars contributed significantly to fostering and promoting a shared understanding amongst the faculty and students of outcomes-based curricular goals and strategies. Time commitments needed for all CRC members was clearly articulated by Chair. All members, including students were specifically asked to make a multi-year commitment of time to the CRC. At much later stages in this process of curriculum reform, and as the implementation phase of the new curriculum got

underway, a new Dean recruited to the Faculty was successful in leveraging additional budget and other resource commitments from the Provost and various external partners to recruit additional faculty and staff and expand the external clerkship program.

Organizational structure of Pharmaceutical Sciences. At the time of program reform, there were 5 disciplinary-based Divisions each with a Chair – Pharmaceutics, Pharmaceutical Chemistry, Pharmacology and Toxicology, Clinical Pharmacy, and Pharmacy Practice. They were used in stage 2 to divide into working groups and were useful for getting the groups plus each Division Chair to think about the content in context of outcomes and how to teach the materials. Over a period of 4-6 months, an iterative document that articulated a set of “general ability-based outcomes” and a set of “specific ability-based outcomes” for a new pharmacy program was developed and approved by the CRC for broad distribution to all faculty, staff, students and selected preceptors for feedback. This was followed by an invitation to all stakeholders to attend a Town Hall meeting in April of 1998 to discuss the ability based outcomes. There were over 200 attendees and an overwhelming approval of the outcomes.

Stage 2: Disciplinary Phase

This phase of the work was characterized by participation of all faculty including all student and preceptor members of the CRC into the 5 disciplinary working groups noted above. Working group members were in their comfort zones, discussing and debating the merits of disciplinary subject matter with a distinct lack of focus on outcomes, and the teaching and learning strategies needed to achieve those outcomes. This phase would have failed completely except for the intervention of the consultant, who introduced a “template” concept. The goals for each working group were to identify the essential disciplinary content but to place the content areas on a template with general and/or specific ability based outcomes appropriate to the content area, teaching and learning strategies also consistent with achieving the outcomes and finally, potential assessment strategies. The consultant provided support through workshops to demonstrate the utility of the template approach: that is, linking the ability-based outcome to the content, to the teaching/learning strategy and to the appropriate assessment strategy. Eventually, the templates were assembled into courses or modules. The progress of all working groups was available for public viewing as poster boards for each working group were placed in the main building hallway.

Stage 3: Integration Phase

This final stage of the process took place very intensively over 2 academic terms (about 8 months). Once all the templates had been completed, this stage required integrating all the pieces together into the 1+4 years of the program. Courses and modules needed to be sequenced appropriately. Some key principles were agreed to before embarking on this stage of the process as follows:

1. A full course entitled CAPS (Cases in Pharmaceutical Sciences) would be included in each term of every year of the 4 year program. These courses would be all small group case-based or problem based learning and would incorporate all of the ability-

based outcomes. The primary intent of each CAPS course would be to integrate content being learned across all disciplines. Cases and/or problems would gradually build in complexity as the CAPS courses progressed through the years of the program.

2. Every course/template must incorporate a minimum of 3 ability based outcomes and teaching and learning and assessment strategies must be appropriate to meeting the outcomes.
3. Increase the number of weeks of external clerkships and begin the clerkships earlier in the program.

In this intensive phase, it became clear that full buy-in and participation of all faculty in the debate and decision-making was needed as each of the courses and modules were discussed, credits assigned, pre-requisites determined, and courses integrated into the program. Thus the CRC was abandoned, in favor of all faculty meetings every 2-3 weeks, led by the CRC chair and attended by the Dean. Consensus voting was used where needed to achieve decision-making. In this way, the process maintained full openness and transparency, faculty members were held accountable for attending and participating, everyone was informed about all issues and decisions and the framework for the new curriculum was built in a collective and collaborative fashion. To complete the design, planning and framework development phase of the new curriculum, two final full faculty retreats were held. Each course/module template was discussed at length in terms of the elements of outcomes, content, teaching/learning strategies and assessment methods. The end of the last retreat incorporated a formal voting to approve the new 1+4 year curriculum framework. It passed unanimously.

Reflections and Lessons Learned

The planning and framework design phase took place over a long timeframe and indeed was viewed by many as excessive. A secondment or buy-out of dedicated time to the process for the CRC Chair would have significantly accelerated this phase. The CRC chair needed to stay strongly focused on, and committed to, the principles of outcomes based curriculum design, as it turned out to be very challenging to sacrifice heavily content-based coursework, in order to develop the problem solving, critical thinking and communication skills and abilities that were essential to the CAPS stream of courses and an enhanced external clerkship experience. Furthermore, access to a curriculum consultant who was knowledgeable about outcomes literature, was essential. For example, most faculty members had no understanding whatsoever about outcomes or authentic assessment. The consultant was able to assist with theory-practice integration for curriculum reform at critical points when overcoming challenges to progress. Faculty members struggled particularly with program level assessment and, to a large extent, this was sidelined in favor of dealing with the much more straightforward course level assessments. Discussions were held about program portfolios, mid-program comprehensive assessments but were not implemented. Resources would have been necessary, including additional staff/consultant support, in order to have developed program level assessment. Aiding this process, the CRC Chair was empowered and given full authority by the Dean to lead the process. The choice of a senior, credible faculty member

with a successful track record in teaching and research was the right one. For example, faculty members, students and pharmacy practitioners shared a powerful and common vision for what changes needed to be made and the key elements of an outcomes based curriculum. The bar was set high and at times, it was necessary to manage these high expectations. Evaluation of the traditional research metrics resulting from the entire curriculum design phase of this work through to complete implementation and program assessment, demonstrates the achievement of a broad and impressive range of academic and scholarly inputs, outputs and outcomes. For example, inputs included consulting opportunities, grant funding (such as UBC's Teaching and Learning Enhancement Fund) and institutional and external fellowships. Academic outputs included, national and international conference presentations, peer reviewed journal publications, graduates of the SoEL program, international partnerships, honors and awards, training of Highly Qualified Personnel. Finally, the SoTL/SoCL has had an important impact on institutional curricula through training and development of curriculum leaders at UBC and internationally. In summary, our research and leadership experiences in diverse RIU contexts suggest that SoCL is not without significant barriers and situational-specific (internal and external) challenges. As such, key institutional supports for SoCL (including strategically-aligned criteria for promotion and tenure, strategic professional learning experiences for curriculum leaders) play a critical role. Furthermore, in order to effectively engage networked improvement communities around curriculum inquiry, attention is required to the art, science and politics of curriculum leadership.

Operationalizing "THE ART" of Curriculum Leadership

- Having a good working knowledge of the views and perspectives of faculty, students and members of the profession on the needs of the pharmacy program
- Having a reasonable sense of the potential road blocks and controversial or sensitive issues e.g., understanding that we would have to cut the number of credits assigned to basic pharmaceutical sciences like pharmaceutical chemistry, pharmaceuticals, analytical chemistry, and that experimental laboratory-based hours would likely be cut back. The expectation was that full discussions and debate would take place but that, where necessary, compromise and full faculty votes/decisions would be essential in order to keep the process moving forward.
- Knowing who would be willing and reliable in terms of a commitment to working on issues that were critical but generally tedious (e.g., determining pre-requisite courses, content areas for these pre-requisites)
- Good process for buy-in – visibility of the Chair and willingness to engage individually and in groups - meet with faculty, get in front of students, town hall, seminars
- Visible evidence of progress was good for incentivizing and maintaining motivation e.g., town hall, outcomes document with very broad distribution to all stakeholders, posters in main hallway to show WG progress. The final Integration phase was tackled on an undergraduate year-by-year basis so faculty could see that we were making progress.
- Knowing when to back off on some of the ideas was critical e.g., we wanted to introduce a research project requirement into every student's experience. Even

though it was felt to be important, with 140 students in each year, there would be considerable road-blocks in terms of implementation feasibility.

- Leading all sessions, with no substitute chair. Clear agendas were established for all full faculty sessions, allowing for fulsome discussion and debate. It was also important to know when to draw consensus and make decisions.

Operationalizing “THE SCIENCE” of Curriculum Leadership

- The Faculty were already reasonably familiar with the concept of competencies in a professional curriculum – there was a competency based approach to continuing professional development and education in Pharmacy. The move to an ability based outcomes curriculum was not a huge conceptual leap for faculty
- Other facilitating factor: Some pharmacy faculties in the USA had published on this approach to their curriculum – so there was some credible literature and evidence to back this up
- Providing relevant literature examples of outcomes-based initiatives and evidence-based practice
- Taking a systematic, rigorous and data-driven “improvement” orientation to curriculum renewal
- We decided to divide the full set of curriculum outcomes into general ability outcomes and specific ability outcomes as this was a good way for both the basic/pharmaceutical sciences and the pharmacy practice/clinical pharmacy faculty to “see” themselves working with the outcomes. The clinical/practice faculty identified closely with specific outcomes and the general outcomes were more useful and less constraining for the basic/pharmaceutical sciences faculty to work with. This was an excellent first start and allowed full buy in from all the disciplines.
- We worked really hard and spent a long time on the outcomes - providing lots of context and specific concrete “examples” and in that way, it helped in defining what we needed to do.
- The disciplinary working groups approach in phase 2 was welcomed by faculty members in order to begin doing a deep dive into tackling outcomes with content in mind.
- The integrated CAPS course strategy throughout the program was embraced by all faculty and students, and was based on the following characteristics: 1) be small group learning 2) integrating material being learned 3) must meet all general ability based outcomes in a given year. The role of the Chair was to maintain CAPS as a non-negotiable part of the program.
- Ensure that no new courses were developed without the minimum 3 outcomes being defined. Teaching and learning strategies had to be appropriate to outcomes.

Operationalizing “THE POLITICS” of Curriculum Leadership

- Know your stakeholders and accessible support network
- Understand what they want out of the new curriculum and strategic priorities
- Establish clear principles of engagement

- Get the right stakeholders onto the committee
- Report to Dean – no middle management in the way
- Good working relationship and communication with the Dean
- Considerable autonomy granted by Dean to Chair
- Maximize available resources. Curriculum was zero based – and designed without constraints of budget. This was openly acknowledged from the start – that we would not be constrained by considering what additional funding would be needed – this was quite naïve in retrospect but allowed us the freedom to design a more resource intensive curriculum review. Resource requirements were only considered after new curriculum approved by faculty.
- Must be a credible leader – senior individual essential with track record in getting things done, research credibility
- Credibility also for teaching and practice faculty – need trust from different groups
- Effective communications (make visible) on-going curriculum progress and dissemination of findings

CONCLUSION

Curriculum leaders in RIU contexts are increasingly responsible for the strategic development, implementation and evaluation of high quality learning-centered undergraduate and/or graduate programs. As noted at the outset, we contend that SoCL (i.e., engaging networked improvement communities around curriculum inquiry) is central to sustaining and enhancing research-informed, strategically-aligned and evidence-based programs in these settings. As a strategic form of curriculum leadership, SoCL is still very much in its infancy, both theoretically and practically, on research-intensive university campuses around the world. We have attempted to provide a theoretical framework for SoCL, as well as practical examples for its strategic use within and across diverse disciplinary contexts. Although the examples presented are still works-in-progress, significant developments and commitments to curriculum leadership (e.g., selected academic leaders from multidisciplinary settings engaged in an annual 8-month scholarship of educational leadership program since 1998) have been made in UBC's RIU context. However, they are not without substantive challenges. For example, institutional concerns about continual changes in senior administration, and competing funding priorities (e.g., disciplinary research foci, increasing growth of service units, and implementation of new technologies), exacerbated by already-heavy workloads for curriculum leaders, often constrain efforts to fully operationalize SoCL across the campus. Second, the use of the term "Curriculum" (and its practice implications) is often lost in the complexity of the widely used term of 'Teaching' for the purposes of promotion, tenure, and workload considerations. Third, notable scholarship-related challenges for those involved in evaluating the impact of SoCL include the selection of appropriate journals for dissemination, single versus multiple-authored works, and quantity of publications versus authentic evidence of impact at the institutional/Faculty-wide practice and beyond (Boshier, 2009). Thus, even under supportive institutional conditions, it is far from easy for many curriculum leaders to engage in SoCL.

Our research and leadership experiences suggest that key institutional supports (including strategically-aligned promotion and tenure expectations, strategically-aligned professional development initiatives) play a critical role with the implementation of SoCL in RIU contexts. Furthermore, in order to enhance SoCL in RIU settings, attention is required to the art (e.g., navigating barriers, social mediation, facilitation, adaptability, flexibility, creativity to meet diverse needs and changing circumstances), science (e.g., relevant scholarly literature and conceptual frameworks; systematic, rigorous and evidence-based practice; peer-reviewed dissemination), and politics (e.g., key stakeholder representation, strategic priorities, accessing appropriate resources and network support; managing issues of power; effective communications pertaining to on-going curriculum progress and dissemination of findings) of implementation.

While there are still many challenges and areas for improvement, an institutional and Faculty/College-wide commitment to SoCL can be the basis for richly informed university and Faculty-level curricula reform. Despite various challenges, there are encouraging signs of progress in universities around the world. We are beginning to see more international collaborations, institutional support, and expertise within this multidisciplinary and interdisciplinary field of SoCL.

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UTILIZING TECHNOLOGY IN THE CLASSROOM: A STUDY WITH JORDANIAN PRE-SERVICE EFL INSTRUCTORS

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ABSTRACT

The per se of ad hoc this study was to examine the trainees' utilization of technology in their classrooms in a genuine practice teaching experience. To achieve this objective, a questionnaire was distributed to 90 trainees completing their teaching practical training at Irbid University College/Al-Balqa' Applied University. The participants were all English Majors students. Semi structured interviews were also employed with 14 of the participants for data triangulation. The findings of the quantitative and qualitative data indicated that the practical training was not rich in terms of the technological aids obtainable for the trainees for their EFL classes. The results further revealed that trainees were not availing from technology obtainable for them in their teaching practice at a satisfying level. Inappropriate training, deficiency of basic equipment in the practical training schools, and trainees' own options were found the prime causes for trainees to utilize technology in the teaching practice process. The results of the study showed a discrepancy between teacher training programs and real-world classrooms in terms of technology incorporation in EFL instruction. Pedagogical inclusions of the study implied the need for better incorporation of technology in EFL teacher training and a more robust connection between the schools and the university.

Keywords: technology, EFL, Pre service instructors training

INTRODUCTION AND THE PREVIOUS LITERATURE

“The utilization of technology in instruction has recently become more significant; instructors also have to be able to keep up with the technological knowledge of their students” (Richards, 2014) in order to encounter the anticipations of today's ‘digital natives,’ who are competent, and dependent on computers and other online instructional tools (Prensky, 2001). In addition, the utilization of technology for teaching, learning, practicing and assessing

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foreign language has many utilities , specifically in the English as a Foreign Language (henceforth , EFL) classroom where learners have very limited chances to practice and evaluate their language skills (Alsied & Pathan, 2013). The utilization of technology in instructional activities also plays a pivotal role for involving students in learning (Günüç & Kuzu, 2014).

With the ameliorations in technology and its utilization in EFL classrooms, the roles of the EFL instructors are also changing (Zhu & Wang, 2006). Along with this change, the knowledge of technology utilization becomes necessary for foreign language teacher candidates in many teacher training programs (Barzaq, 2007) and for the instructional knowledge of both in-service instructors (Chiang, 2003) and teacher educators (Moradkhani, Akbari, Ghafar Samar, & Kiany, 2013). It is even referred to as one of the EFL teaching practice assessment criteria (Canh, 2014). Language instructors' skillfulness to the utilization of technology is also assigned amongst the sufficient teacher characteristics in higher education (Kourieos & Evripidou, 2013). Additionally, the purpose of professional amelioration is considered as assisting instructors make meaning of technology amalgamation in teaching to adjust its impact on education (Barzaq, 2007).

Regarding the reasons to amalgamate technology in foreign language classrooms, Lam (2000) maintained that language instructors utilization of technology presented a converted manner of demonstration and offered a sort of ardour for students; not due to the lack of knowledge about teaching with technology, but attributed to a lack of liaison with technology. As one of the most common technological aids in the classroom, the utilization of PowerPoint presentations can suggest opportunities for amalgamating movies, "colourful texts, graphs, illustrations, photographs, drawings, tables, and transition from one to another via a slide Show" (Alkash & Al-Dersi, 2013: 14). Interactive White Board utilization is also proposed in foreign language teacher education programs to expedite student involvement (Çelik, 2014).

In fact, EFL instructors perceived technology utilization very beneficial in many studies and teaching contexts. For example, instructors in Iran had positive attitudes toward utilizing technology to increment language learning via a computer-oriented instruction (Mollaei & Riasati, 2013). In the same path, there was a positive correlation between a teacher's existence during computer utilization and a Computer Assisted Language Learning (CALL) training and a positive perception toward the utilization of Information and Communication Technologies (ICT), pedagogies in learning in the Saudi classrooms (Alshumaimeri, 2008). In the same vein, Jebiril (2012) emphasized that a Palestinian EFL teacher had few instructional obstacles in accommodating and applying ICT, and that the participants showed a high level of educational improvement via the ICT-interference practice. Moreover, instructors' ratifications regarding the nature of knowledge and learning and ratifications concerning efficacious methods of instruction were in correlation with their technology amalgamation practices (Kim, Kim, Lee, Spector, & DeMeester, 2013). Following the same path, Park & Son (2009) maintained that Korean EFL instructors were found to be viewing computer technology as a beneficial teaching instrument that could vividly uphold means of instructing by promoting students with a diversity of language inputs and boosting students' learning capacities in real-life situations. Finally, the merits of utilizing the Internet in the EFL classroom were deemed as providing genuine materials for learners, making students encounter native friends online, and helping teacher-student interaction (Chong, 2001). In the similar context, Shin and Son (2007) claimed that instructors' personal interest in Internet utilization, their skills in integrating the Internet resources in classroom activities, and

computer conveniences and technical advocacy in schools were the three paramount factors affecting the Internet utilization in the foreign language classroom.

Even though instructors had positive perceptions towards incorporating technology in instructing EFL students, a number of barriers have also been observed. For instance, Chinese EFL instructors utilized technology principally for teacher-centered motives, such as instructional supply, and rarely utilized technology for student-centered purposes. Causes of limiting student-centered technological utilization in early EFL teaching were teacher-centered experiences in education and lack of practical professional development that confirmed instructional planning and technology incorporation (Ni, 2011). Similarly, most of the Libyan instructors confronted obstacles related to time constraints and shortage of administrative support (Emhamed & Krishnan, 2011). Moreover, Iranian EFL instructors were also found to be suffering from some sort of complexity in implementing CALL in language classrooms as perceived by the instructors themselves, facilities to utilization, learners (Hedayati & Marandi, 2014), shortage of online services and resources, shortage of interface in online instructing, cultural dissents to online instructing, instructors' insufficient knowledge of online instructing (Dashtestani, 2014), integrating technology in their instruction effectively because of utilization of instructors' self-esteem to utilize technological equipment, viewing them as a time-consuming, suffering from technophobia, and shortage of technological devices that can be utilized for teaching (Kazemi & Narafshan, 2014). Finally, utilizing the Internet in EFL classes also brought some hurdles as it requested prolix time to get the rigorous information, and as it was not easy to determine the Internet sites for the EFL classes (Chong, 2001).

Additionally, age was found as a variable in technology incorporation in foreign language classrooms. According to Rahimi and Yadollahi (2010), a lower technology apprehensiveness had revealed better incorporation of technology in EFL classrooms; and as older instructors had higher levels of technology apprehensiveness than younger instructors, they were more hesitant to integrate technology into their classes. It was also maintained that external factors such as time restrictions, inappropriate technology, rigid school programs and curricula, and shortage of departmental care influence the implementation of CALL in a predatory way. Moreover, internal factors such as instructors' inaptitude in technology utilization, technological cognizance, and opinions on technology incorporation also affect instructors' options to the utilization of technology in their classrooms (Park & Son, 2009).

In Turkey, for example, in-service instructors have become the research interest with regard to their technology incorporation in the practice teaching environments. Erişti, Kurt, and Dindar (2012) reported that inaptitude of the staff to support instructors for technology, failure to give them the necessary assistance at the right time when needed, insufficiency in infrastructure, the quality of instructors' efficacy in the utilization of technology, and the shortage of sufficient time in the course in order to become competent in technology utilization are among the hurdles that hinder instructors' technology utilization in their classrooms. Moreover Sağlam and Sert (2012) reported that instructors had positive attitudes towards the role of educational technology for developing language instruction. Additionally, they avowed the obstacles experienced called for a pre-requisite for technology incorporation training for both instructors and students. The results further revealed that EFL instructors benefit from technology for teaching both academic and linguistic skills, motivating students to build knowledge, offering them a life-long learning skills and strategies, teaching students

with diversified learning styles, finding and creating teaching materials, improving skills through the on-line resources, and creating an attracting context for learning.

As for the pre-service context, we can mention Chung's (2014) recent study in which the researcher compared and contrasted the pre-service and the in-service instructors and their attitudes towards the technology incorporation in EFL instruction. The findings revealed that in-service instructors had more positive perceptions about utilizing digital technology in the second language classroom than the pre-service ones although both groups were generally positive about the matter. It was also revealed that the younger subjects aged from 21 to 29 were more confident about their dexterity in utilizing digital technology. In the researcher viewpoint, if the instructors are confident and well-trained about the utilization of digital technology, they are more likely to emphasize their positive perceptions towards the utilization of digital technology in the classroom. Consequently, instructors' classroom practice, experiences with digital technology, technology-related training, context(s) in which such digital technology was utilized, and their age influenced their perceptions towards technology utilization in the classroom.

Despite that there were copious literature concerning the utilization of technology in foreign language instruction, studies regarding the trainees' experiences with technology incorporation is rather limited. In an attempt, Kuo's (2008) research with Taiwanese EFL teacher candidates revealed that most of EFL trainees possessed positive experiences and perceptions toward the utilization of the Internet-assisted language instruction and viewed technology as a pivotal method in their future teaching careers. However, approximately one fourth of EFL trainees did not have the adequate levels of confidence and were not certain whether they possessed the skills and knowledge of technology to incorporate technology into their future EFL classrooms. In a similar vein, Schmid and Hegelheimer's (2014) results after the analyses of the qualitative data that emerged from both pre-service and in-service instructors reported that the practical experiences stringed along with systematic guided reflexion assisted trainees obtain experience in applying CALL in their instruction. Concerning the researcher's point of view, trainees maintained that school-based experiences assisted them in the following three manners: utilizing technology in genuine language instructing situations, supporting the impact of technology on language teaching and learning, and fulfilling authentic mastery experiences.

SIGNIFICANCE OF THE STUDY

One pushing impetus behind carrying out this research is that many of the studies reviewed in the literature focused on the attitudes and perceptions of in-service and pre-service instructors regarding technology utilization in EFL classrooms. This research, on the other hand, focused on the factual practices of the trainees in their practical training experiences in instructing English as a foreign language. Therefore, taking the related literature and the existing teaching practice context into account, the objective in this study is to probe trainees' utilization of technology in their classrooms during their teaching practical training. It particularly aims at recording the availableness of the technological facilities in practical training schools and their recurrence of utilization by trainees. Second, whether or not trainees benefited from technology in the desired level is put under investigation.

Another driving motive behind conducting this research is that, to the best knowledge of the researcher, there is no study that existed in the Jordanian context which tackled the existence of technology in the EFL teacher training programs; therefore, this study may help in filling the gap in this respect.

Research Questions

This study attempted to provide answers to the following questions:

1. To what extent are practical training schools equipped with substantial technological devices obtainable to trainees' utilization?
2. How often have you utilized the technological facilities during your teaching practical training?
3. To what extent do the trainees utilize technology in a satisfying level in terms of quantity and quality? If not, what are the reasons for this?

METHODOLOGY

Participants

The participants of the study were 90 trainees (64 female 26 male) studying English Language Literature at Al-Balqa' Applied University in Jordan. The trainees were about to complete their 'Teaching Practical training' and course as a prerequisite for their graduation requirements in 2014-2015 Fall Semester. Each of them was assigned to a practical training school for 5 class hours weekly. Additionally, they were assigned a cooperating instructor and a university supervisor. The trainees worked in groups of three and with their assigned cooperating instructor for eight weeks. The first week of the practical training was devoted for observation. After that, each student teacher taught for 8 teaching hours all through the teaching practical training.

Concerning the training that trainees receive that is related to the utilization of technology in teaching; one mandatory course in their 3rd year can be referred to. The course 'Computer Assisted Language Learning (CALL)' aims at equipping teacher candidates with various principles for recognition to find out about the technological tools in instructing without a specific focus on incorporating technology into foreign language teaching. Apart from this formal training opportunity, trainees are expected to develop themselves on technology with the assist of the surveillances of their instructors, presentations they deliver, or informal training chances they will inspire for themselves.

Pending the practical training, trainees were expected to give lessons cooperating with their collaborating instructors by following the existing curricula. Therefore, they did not have the opportunity to decide to utilize technological equipment in their lessons or not to utilize them at all. They were not appointed to utilize technology neither by their university supervisors nor their collaborating instructors. On the contrary of some educational contexts,

they were not evaluated about their skill in efficacious utilization of technological equipment in their lessons.

Instrumentation and the Data Collection

For the purpose of this study, two instruments were employed for data collection: a questionnaire developed by the researcher peculiar to this study and semi-structured interviews were utilized. The data were collected at the end of the practical training process (June 2014) when the trainees completed their teaching practical training. First, the questionnaires were distributed; semi-structured interviews were carried out the day after.

The questionnaire consisted of two parts. In the first part, demographic information about the subjects such as their age, gender, etc. were extracted. In the second part, both Likert-type and open-ended questions were utilized to supply the basis to answer the questions of the research. Semi-structured interviews, on the other hand, were carried out with 13 randomly selected participants. The interviews endeavored to dissociate trainees' views related to the survey items and were tape-recorded after taking the permission of the interviewees for future reproduction. Each interview lasted from 6 to 10 minutes depending on each interviewee's views and interpretations.

RESULTS

This research utilized both quantitative and qualitative data collection instruments. The results were displayed in accordance with the questions in the survey and the results gained from the interview data.

Regarding the first research question, first of all, trainees' views about the benefits of utilizing technological apparatuses in foreign language teaching were questioned to have a better understanding of their practices. According to the trainees, it was significant (34,6%) and even very significant (65,4%) to incorporate technology into foreign language classrooms. Second, the technological instruments available to trainees in the practical training schools were investigated. The findings revealed that the practical training schools were not very rich in terms of the technological tools available to the trainees for utilization in their English classes (Table 1). For instance , almost none of the practical training schools possessed a language lab (96.7%), a TV-Video player (93.3%), or an overhead projector (86.7%) while more than half lacked a smart board (84.4%), a radio-cassette player (75.6%), or a computer with or without Internet connection (56.7% and 68.9% respectively). On the other hand, trainees indicated that most schools (74.4%) possessed a projector in the classrooms available for utilization.

In order to understand the availability of the technological facilities better, the trainees were required to express their opinions concerning the sufficiency of those instruments. Surprisingly, there was an inconsistency among the answers: while 42.3% of the trainees believed that the facilities in the schools were inconvenient (inconvenient = 24.5%; very inconvenient = 17.8%), the rest (57.7%) found those facilities convenient (41.5%) or very sufficient (16.2%). Consequently, more than half of the trainees believed that the practical training schools possessed enough technological tools for their utilization.

Table 1. Availability of technological tools in practical training schools

Technological Facilities	Yes		No	
	N	%	N	%
Language Lab	3	3.3	87	96.7
TV-Video Player	6	6.7	84	93.3
Overhead Projector	12	13.3	78	86.7
Computer (With Internet Connection)	39	43.3	51	56.7
Smart Board	14	15.6	76	84.4
Radio-Cassette/CD Player	22	24.4	68	75.6
Computer (Without Internet Connection)	28	31.1	62	68.9
Projector	67	74.4	23	25.6

The qualitative data supported the survey results in terms of the inefficiency of the technological instruments. Most of the trainees interviewed murmured about the lack and/or insufficiency of the technological devices in their practical training schools. They maintained that:

“There is no computer, no OHP, no projection, etc. Someone told me that there was one OHP-like thing, but it’s placed in a meeting room, we had to go there as a whole class. The only technology was my own laptop and loudspeakers and had a listening class. This was the only thing I did concerning technology.”

“I used technology once or twice. And it was just with my own laptop, the school had nothing ...”

“For instance, I couldn’t find even a loudspeaker to teach listening, so I don’t believe there were things like a projection or a computer or something like that.”

“The utilization of the computer doesn’t work in many classrooms. And there is no Internet connection. I had only one chance and I asked the students to listen to a record using my laptop, that’s all. But I was told that some schools possess smart boards, I mean, if they exist, we would; of course, utilize them in our classes...”

“I think that technology was rare and not much. As for the technological facilities in the school, they didn’t exist in the classrooms. The only things we could benefit were the copy machine and the computer in the instructors’ room. I used to go there and print out and copy the handouts. But there was no technology in the classrooms ...”

Moreover, the majority emphasized that they would be able to sufficiently utilize those facilities if they were given the opportunity to do so. Now here are some of the ideas elicited from trainees concerning how they would benefit from those facilities:

“I know there are many exciting teaching sites with interesting activities in the Internet. At least, I could help my students to practice them. The answers could appear one by one on the screen. In my earlier practical training, the teacher was using it and the students liked it and I also liked it very much.”

“For example, I would utilize technology for presenting a picture. Or I could utilize it to guarantee understanding’ to show the answers of an activity, they could see them better, I think. Visuals, Music, Songs... These can all be given by technology, especially for teaching young students ...”

“When I taught the 6th grades, for instance. Like all children, they were dynamic and overactive. It might be for teaching with videos, songs, and games etc. utilizing visuals might be good, particularly to motivate these ...”

“There was no technology in the classroom. If there were any, sure I would use them. I mean, instead of explaining everything on paper, I would do it on the screen. And when you show a video or a picture to the whole class, some can see well, some cannot; you need to show it to each section. And if there was a computer with Internet connection, it would be an advantage for me. I could check if I am not sure about spelling, pronunciation or meaning of a word, etc.”

To focus on the frequency of the utilization of the technological instruments available to the trainees, a candid question was stated: ‘How often have you utilized the technological facilities during your teaching practical training?’ The responses to the question revealed the following findings: While few of the trainees implied that they never utilized technology (11%), some maintained that they seldom (21.5%) or sometimes (23.3%) availed from technological facilities. Moreover, almost half of the trainees claimed utilizing technology quite frequently (25.7%) or at all times (19.8%). To elaborate, trainees were asked to indicate the type of technology they utilized along with their frequency of utilization. As Table 2 reveals, trainees indicated no utilization of language lab (98.9%), a OHPs (94.4%), a TV-Video Player (93.3%), a computer with internet connection (90%), or a smart board (82.2%), which were already not present in their practical training schools, during their teaching practical training process. Among the present instruments, the projector was never (61.1%) utilized or utilized occasionally (19.1%) by the trainees. Computers available to the trainees in the classrooms without the Internet connection were never utilized (67.8%) or utilized sparingly (13.3%) in teaching practice. This pinpointed that trainees were not availing from the technology either because they were not present or they did not utilize them for any other reason.

Table 2. Frequency of the utilization of the technological facilities during the practical training

	Never		1-2 times		3-4 times		5 times +		Total	
	N	%	N	%	N	%	N	%	N	%
Language Lab	89	98.9	1	1.1	0	0%	0	0%	90	100
Overhead Projector	85	94.4	5	5.6	0	0%	0	0%	90	100
TV- Video Player	84	93.3	5	5.6	1	1.1	0	0%	90	100
Computer (With Internet Connection)	81	90	6	6.7	2	2.2	1	1.1	90	100
Smart Board	74	82.2	9	10	5	5.6	2	2.2	90	100
Radio-Cassette/CD Player	69	76.7	8	8.9	9	10	4	4.4	90	100
Computer (Without Internet Connection)	61	67.8	12	13.3	10	11.1	7	7.8	90	100
Projector	55	61.1	18	20	11	12.2	6	6.7	90	100

Despite that the results in Table 2 indicated a low frequency of utilization; trainees were still required to imply if they availed from technological facilities in the desired level throughout their teaching in practical training. While 31.3% of the participants maintained

that they did, 14.6% of them were not sure about it, and over half of them (54.1%) acknowledged that they did not avail from them at a contenting level. Concerning the reasons for not benefiting from technology, 56 of the 90 trainees, who stated not utilizing the technology enough, mentioned some reasons on the questionnaire by checking more than one item if possible (Table 3). Regarding the survey findings, most of the trainees(63.3%) suffered from the lack of basic facilities in the practical training school while a good number (18.9%) maintained inadequate training on technology utilization, whereas (8.9%) of the trainees referred to students' dissatisfaction, and (6.7%) reported the reason as their own choice, but only (2.2%) or the trainees considered cooperating instructors' reluctance. Finally none of them indicated it as their supervisor's choice.

Table 3. The reasons for trainees' not availing from technological instruments at a satisfying level

Reason	N	%
Lack of basic facilities in the practical training school	57	63.3
Inadequate training	17	18.9
Students' dissatisfaction	8	8.9
My choice	6	6.7
Cooperating teacher's choice	2	2.2
University supervisor's choice	0	0
Total	90	100

Veering from the majority, some trainees claimed that they were utilizing technology very efficiently in their instruction. For instance, one of the trainees illustrated how technology was beneficial for him as follows:

“We utilized almost all of the tools. We could utilize the copy machine, have printouts. The 5th grade class was crowded, I had 47 students. Projection became a helpful for us if I got a colorful printout, not everyone would see it, but with the projection, it was easy. And when I open the projection, their eyes stared at it : I was able to get their attention easily. I utilized all like that. I taught my listening class utilizing the loudspeakers; if the class needs a video, even in mp3 format first, than asking them to watch the video. So, by technology, I tried to make things more meaningful and enjoyable for the pupils ...”

As an endeavor for a more profound understanding of the reasons for not availing from technology in a satisfying level for teaching English during the practical training, trainees' responses to some questions in the survey were anatomized. The interview data, similar to the survey findings, reported on some reasons for trainees' not availing from technological instruments in their classrooms at a satisfying level.

Firstly, trainees' attitudes toward their training at the university about utilizing the technological devices in foreign language classrooms were elicited. The findings indicated

that most trainees deemed the training they got adequate (57.2%) or very adequate (13.6%). While some trainees considered the training inadequate (19.3%) or very inadequate (9.9%). The qualitative data also supported these results. Trainees were not very consistent about the sufficiency of the training they received during their teacher training education. For instance, one trainee was murmuring about the inadequate training on incorporating technology into foreign language instruction:

“There are personal reasons and limited practice, I mean, they don’t teach us to utilize videos or listening things ...”

“We must be exposed to more technical activities. For instance, we had some classes which aren’t enough. Sometimes even I cannot turn on or turn off the computer, sometimes I ask my students for help. And when I do so, then I lose control in the class.”

“For instance, I was never taught in a class using a smart board. So, even if there was one in the school, I wouldn’t be able to utilize it efficiently.”

“I don’t think we had a good education in this respect. We know what we know from our own experience such as PowerPoint presentations. We were never taught like ‘It’s utilized like this, you must be careful about this, etc. I’ve heard from my friends that they had a smart board in their schools in the practical training, and they really had hard times using it. I heard that students in the class helped them utilize it. Now, what if one of us was appointed to a school with all those technological devices?’”

“Really, we had a ‘Computer’ course in the first year, but it was, in fact, not beneficial and not enough at all.

Other trainees maintained that they had to find other ways to ameliorate their dexterities in technology utilization for the purpose of foreign language teaching since they found the training as inadequate:

“I was studying abroad and I was trained for the high school and I had participated in a few courses related to computer.”

“My school didn’t teach the computer. I just learned it by practicing myself. I wrote presentations for myself, for my classes, especially for the presentations to take instructors’ attention. So I developed my computer skills myself.”

“I just participated in a computer course and I learned there, not at university. I didn’t learn computer at university.”

Secondly, they were questioned about the utilization of technology by their cooperating instructors, who were expected to consult them during their practical training process. The analysis revealed that 35.7% of the cooperating instructors never utilize technology in their classrooms. Some reported rarely (24.9%) and sometimes (20%) benefiting from technology while 13.4% were found to be utilizing technology in teaching English quite often. Only 6% of them were always utilizing technological devices in their teaching. One trainee explained the reasons for cooperating instructors’ not utilizing technology as not having the required technological instruments in the schools as follows:

“They don’t utilize it because they simply don’t have it. I’m sure they can utilize it because, for example, they were easily able to assist us with the computer or the copy machine when we encountered problems with them. And if they utilize them, I can guarantee their success.”

DISCUSSION AND CONCLUSION

As the first result in this study revealed trainees, emphasized the usefulness of exploiting technology in foreign language classrooms. The results are in consistent with the previous literature in various in-service research such as (Alshumaimeri, 2008; Park & Son, 2009; Jebiril, 2012 ; Sert, 2012; Kim et al., 2013; Mollaei & Riasati, 2013; Chung, 2014 ; Çelik & Aytın, 2014; Uluuysal, 2014) and pre-service research worldwide (Kuo, 2008; Yüksel & Kavanoz, 2011; Hismanoglu, 2012a; Savaş, 2012; Chung, 2014; Schmid & Hegelheimer, 2014; Başöz & Çubukçu, 2014; Savaş, 2014). The study has not shown unforeseen findings as technology is now in the agenda of most instructors so as to keep up with the current practices. Instructors are also aware of the need for technology in order to avoid counter-reformation and counter-productivity.

A further result obtained from both quantitative and qualitative data sources, the practical training schools were found to be not rich in terms of providing trainees with the essential technological instruments for utilization in foreign language instruction. In line with these results, trainees and instructors in in-service training programs in the previous literature also complained about the lack of these tools (Hismanoglu, 2012b; Aydiin, 2013; Çelik & Aytın, 2014; Dashtestani, 2014; Kazemi & Narafshan, 2014). In our view, it can vividly be concluded that this lack and/or insufficiency of those instruments was the main reason for both trainees and their cooperating instructors for not availing from technology in their EFL classes at a satisfying level. One vital point that should be emphasized in this discussion is that those trainees were mostly very enthusiastic to apply technology-based classroom activities if they had the opportunity to do so. Throughout the interviews, the majority of the trainees maintained that they would incorporate technology into their classroom practices. They would not only obtain experience about the how-to-utilize standpoint, but also provide their instruction with several technology-aided classroom activities. It is now known that technology-integration not only supplements student learning but also amplifies trainees' self-esteem and assist them foster their skills in English as a foreign language (Savaş, 2012).

Furthermore, this study also revealed that trainees were not benefiting from technology obtainable to them in their practical training at a satisfying level. Like the trainees, the cooperating instructors were also destitute in terms of benefiting from technological devices in the EFL classrooms. As all practitioners in teacher education would avow, the cooperating instructors are expected to be good role-models for trainees. In fact, trainees foresee support and a facile role-modeling from their trainers for incorporating technology into their instruction (Hudson & Nguyen, 2008) in addition to exploiting a communicative approach to their foreign language instruction (Zhang, 2013). Consequently, cooperating instructors should work as advisers to the trainees not only in teaching skills and strategies, but as efficacious technology users.

However, cooperating teacher impact is not the only reason. According to Liu (2011), instructors favored lecturing to utilizing more constructivist activities with technology although many of them prefer learner-centered approach in teaching. It is no doubt true that an open and caring environment is essential to exploit trainees' practices throughout the practical training so as to ameliorate their attitudes and to improve their cognitive advancement (Yuan & Lee, 2014). Moreover, possessing a high level of language proficiency as well as a satisfying level of technological knowledge is a necessity for the utilization of

technology in the EFL instruction; therefore, teacher training programs should display English language instructors more opportunities for cultivating their language competence with a particular focus on their oral skills (Kourieos & Evripidou, 2013). Trainees should not be criticized as they are only at the starting point of their career as instructors considering the fact that they could develop more positive perception toward technology utilization in EFL teaching as they aggrandize their experience in utilizing the instructional instruments (Savaş, 2014).

Last but not least, the eventual result of the study indicated that trainees were not utilizing technological devices for specific reasons. Not being familiar with certain technological equipment or not having the necessary knowledge about teaching English through technology just like the instructors in Lam (2000)'s study, were among those reasons. In spite of the fact that a nominated proportion of the trainees found their training at the university about utilizing the technological aids in foreign language classrooms adequate, within an ambition to attain a perfect satisfaction level, the training trainees are provided with on the utilization of technology in EFL teaching is worth considering. As one student teacher illustrates during the interviews, foreign language teacher education, must have courses sutured to the needs of the EFL learners, in which they could understand the theoretical background about technology in English classrooms as well as practice chances for developing materials, explaining language items such as vocabulary and grammar, and practicing language skills, particularly listening comprehension skills. She maintained:

“Technology isn't a skill that instructors can learn by themselves. First, they must have interest in it. If they are not interested, then they will find it difficult to learn it. I think that all schools in future will possess technological aids, specifically smart boards, so all teachers should be equipped with the essential knowledge about technology integration in teaching English.

As the trainee advocated, all schools will have the necessary technological devices in near future. However, those instructors will not be ready to incorporate that technology into their instructions as they did not have the necessary know-how skills related to the various aspects of CALL, ICT, mobile learning, and so on. As Başal (2013) maintained, practical knowledge about material construction for online courses is the missing part of ELT departments training English language instructors. In the same line, this study vividly documents the existing gap between teacher education and the needs of the real world.”

SUGGESTIONS AND IMPLICATIONS

The results in this study is able to present some suggestions for trainees, cooperating instructors, and university supervisors for the integration of technology in EFL instruction and some inclusions for teacher education programs and practical training schools for a better practical training for the trainees and a more plenteous learning for the students.

Foremost, the higher education institutions should benefit from the results in this study; specifically the pedagogical instruction departments. In other words, EFL teacher training programs should reassess their existing program and focus their all potential to replenish technology-integration training in the recent curricula. Barzaq (2007) admonishes EFL

teacher education programs for amelioration in technology education that they develop the departments of education in bias with up-to-date neoteric developments, and requirements, in order to harmonize current changes and digital exploitations in the educational process. Additionally, they should adapt educational technology to maintain the e-learning projects, to expand the online learning as well, train student-instructors on technological implementations and add the computer technology as an obligatory requirement. Furthermore, EFL pre-service instructors should be trained as developers of online material (Başal, 2013) for better technology integration. We must not forget that boosting pre-service instructors' connection, training, and harmony with technology will assist them improve their self-esteem, self-efficacy, motivation, and computing habits (Robertson & Al-Zahrani, 2012). However, this can be fulfilled either by adding technology in the courses in the language teaching methodology departments. Another alternative can be to provide students, who are the future EFL instructors, with elective courses specifically designed to teach English via technology.

In the second place, practical training schools and universities should work in collaboration for technology integration because trainees believe that technology-rich practical training opportunities reinforce the amelioration of substantial technology-related skills (Schmid & Hegelheimer, 2014). For instance, Murphy, Richards, Lewis, and Carman (2005) introduce a Teacher Inquiry Group (TIG) consisting of a group of classroom instructors and other school and district stakeholders, along with teacher education faculty members meeting to discuss, share, and analyze best practices for integrating technology into classrooms. Payant (2014), on the other hand, admonishes the utilization of video recordings to detect pre-service instructors' personalities as instructors, and their instructional and practical knowledge bases. Finally, attitudes and perceptions of trainees about the nature of knowledge and learning should be taken into account in order to enable technology integration as these attitudes and perceptions could be an explorative argument to deal with the delphiniums to technology integration (Kim et al., 2013).

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DIFFERENCES IN GRADUATION AND PERSISTENCE RATES AT TEXAS COMMUNITY COLLEGES AS A FUNCTION OF DEVELOPMENTAL EDUCATION ENROLLMENT

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ABSTRACT

In this research study, the extent to which differences were present in graduation and persistence rates as a function of developmental education enrollment at Texas community colleges was addressed. Archival data from the Texas Higher Education Coordinating Board Interactive Accountability System were downloaded and analyzed herein. Specifically, graduation and persistence rates from Texas community colleges in the 2009 through the 2013 academic years were analyzed to determine the effects of developmental education enrollment on graduation and persistence rates over time. Statistically significant differences were established as a function of developmental education. Over this time period for students enrolled in developmental education, graduation rates only improved by 0.56% and persistence rates actually decreased by 4.84%. Graduation rates were 10.72% higher and persistence rates were 7.94% higher in 2013 for students not requiring developmental education when compared to students enrolled in developmental education. As such, student success does not appear to be improving because of developmental education over time. Results, implications, and suggestions for future research are discussed.

Keywords: developmental education, graduation rates, persistence rates

INTRODUCTION

Increasing access to college has long been a goal of community college systems. Jenkins (2014) asserted that the convenient location of community colleges in both rural and urban areas has allowed many more students to attend college than would otherwise be possible. This opportunity is important because the National Center for Education Statistics (2013) indicated that in 2012 the rate of unemployment for 25-34 year olds with a bachelor's degree

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was only 4.1% compared to 12.8% unemployment for individuals who had completed only high school. Earning potential and employment rates have a direct correlation with educational level (Odland, 2012). Miller (2011) noted that even an associate's degree, or a 2-year degree, placed students in an advantageous position. Students with this degree earned approximately \$8,000 more than students with just a high school diploma (Miller, 2011). Selingo (2013) also recognized the potential of the community college 2-year degree because its value immediately following graduation kept pace with the worth of a 4-year degree. Therefore, any college degree continues to be an important factor for employability and increased income. As such, the role of community colleges in supporting this endeavor is invaluable.

Supiano (2014) concurred that a great earnings disparity exists between young adults with and without a college degree. For young adults with a college degree, this earnings difference means a greater likelihood of living independently, having higher median earnings, and maintaining employment. Furthermore, Supiano (2014) determined that 86% of young millennials with a college degree believed that their current job was on their chosen career path; only 57% of young adults without a college degree reported that way about their current position. A college degree continues to play an important role in ensuring that people are able to attain viable employment in the career of their choosing.

Unfortunately, many students do not arrive at the community college with the skills needed to succeed and graduate (Bailey & Cho, 2010; Barnes & Slate, 2011). Gallard, Albritton, and Morgan (2010) contended that the single most important indicator of students' success in college is their preparedness for college course work. Bailey (2009) declared that at least half, and perhaps more, of incoming college students were not college ready. Barnes and Slate (2014) confirmed that only 53.91% of graduating high school seniors in Texas in 2009 were college ready in reading and only 54.08% of graduating high school seniors in Texas in 2009 were college ready in math.

Therefore, to combat lacking college readiness, community colleges either offer or require developmental education, also called remedial education, which attempts to enhance students' skills before they enter college-credit courses. Although these developmental courses certainly have noble intentions, the current systems of delivery are failing (Edgecomb, 2011). Many students who enrolled in these courses were not persisting through them (Bailey, Jeong, & Cho, 2010), which indicated they are not progressing to credit-bearing courses, and eventually, graduating. Bailey (2009) contended that most current developmental education programs were not effective. Scott Evenbeck, president of City University of New York's experimental community college, reiterated, "When students go into remediation they never leave it...and among students who are in the bottom tier of remedial programs the graduation rate is less than 1 percent" (Selingo, 2013, p. 187).

The challenges of developmental education have received much attention across the country, even outside the walls of community colleges. The nationally recognized non-profit organization, Achieving the Dream (2015), formed the Developmental Education Initiative from 2009 to 2012. Funded by the Bill and Melinda Gates Foundation, 15 community colleges in six states participated together to improve and reform developmental education. Among the efforts to improve developmental education were increased professional training and student-led focus groups to determine effective practices (Achieving the Dream, 2015). Efforts such as the ones mentioned may be indicative that the lack of success of

developmental education programs are concerning to those professionals outside of educational institutions as well as educators and administrators within community colleges.

Two recent key factors have created even more urgency to improve community college graduation and persistence rates through developmental education. First, President Obama issued a mandate in which he requested that five million more students graduate from community colleges by 2020 (Gonzalez, 2012). Also, the onset of Common Core State Standards, set benchmarks adopted by 45 states, provided another tool that demonstrated that a vast number of students were not college ready when they graduated from high school (Mangan, 2014). These new standards of completion are adding pressure to community colleges, which practice open-admissions policies, to see even larger numbers of underprepared students through to graduation (Fain, 2014).

Community colleges also feel pressured to assist underprepared students to persist and graduate because their funding is connected to retention. Mangan (2015) reported that at least 30 states reward higher education for certain measures of achievement, and student retention is one of them. This trend will most likely continue because of the support of President Obama and different educational foundations that are pushing for better graduation rates (Mangan, 2015). Therefore, much pressure exists for community colleges to retain students and to see them through to graduation.

Developmental education is financially costly for institutions, creating doubt about its value and quality. Schmidt (2008) noted that in California alone, colleges spend nearly \$300 million annually to provide remediation. Also, Carroll, Kersh, Sullivan, and Fincher (2012) examined developmental education costs for six colleges in Arkansas. For example, Northwest Arkansas Community College had a total enrollment of approximately 5,200 students. Nearly 30% of students were enrolled in developmental courses, which totaled almost \$2.6 million, or \$1,480 per student. Carroll et al., (2012) suggested that some lawmakers and citizens view this use of funds as a waste of limited resources considering these students lack skills that should have been gained in elementary and secondary levels. Many individuals believe that such large amounts of money could be used more effectively or used better elsewhere.

Revealed in a review of the literature was that reformed models of developmental education were demonstrating more positive results than traditional models. Mangan (2014) noted that other models were being tested in community colleges, such as concurrent remediation, that allowed students to take their developmental courses alongside their credit-bearing courses. Another type of reformed developmental course under consideration is the accelerated format. Acceleration refers to enrollment in shorter developmental course sequences (Hodara & Jaggars, 2014) that may assist students to complete requirements more quickly so they may enroll in credit-bearing courses while still gaining academic support (Edgecomb, 2011). An Accelerated Learning Program (ALP) course “meets in the class period immediately following the college-level class” and students are simultaneously enrolled in both the college-credit course and the developmental course (Bailey et al., 2010, p. 48). Furthermore, these compressed developmental courses allow students to complete multiple courses simultaneously in one semester (Edgecombe, 2011). This type of course may assist some students because the shorter timeframe creates more student motivation when they can complete more courses quickly (Sheldon & Durdella, 2010). Levin and Calcagno (2007) concluded that new delivery approaches of developmental education were more effective than traditional approaches.

STATEMENT OF THE PROBLEM

Community college leaders and researchers across the nation have collaborated about the lack of success with traditional developmental education models. Leaders of four higher education groups recently commented, “Remedial courses meant to get underprepared students ready for college-level work are often not an on-ramp but a dead end” (Mangan, 2012, para. 1). Fike and Fike (2008) agreed that “we need to be concerned about students leaving college. For every student lost, an educational dream goes unfulfilled. And for every unfulfilled dream, there is a long-term impact” (p. 85). Unfortunately, developmental education is not functioning to improve graduation and persistence rates for many students.

Despite best intentions, students have not persisted in these courses (Bailey et al., 2010) which indicated they were not graduating at satisfactory rates when first enrolled in a series of lengthy prerequisite courses aimed at preparing them for credit-bearing courses. However, Crews and Aragon (2007) maintained that some type of remediation was necessary because only about 10% of underprepared students who did not receive assistance completed a degree. A debate exists about how best to prepare an unprepared student body at the community college level when ACT (2013) indicated only 25% of students were college ready in the four subjects of math, science, reading, and writing.

Significance of the Study

Although developmental education courses are popular and prevalent in community colleges, less than 25% of students who enroll in them completed any type of degree within eight years (Bailey & Cho, 2010). Therefore, developmental education courses are not functioning as conduits for student persistence and graduation. These courses are costly for both students and institutions, yet they do not yield favorable results for most students. The findings of this study may urge higher education educators and administrators to identify better methods of remediation to reform developmental education courses. Further, findings may also provide legislators with empirical data to make sound policymaking decisions regarding the academic unpreparedness of college students.

Purpose of the Study

The purpose of this research study was to determine the extent to which enrollment in developmental education was related to Texas community college students’ persistence and graduation over a period of time. Furthermore, the purpose of this research study was to conclude the extent to which a trend might be present for the 2009 through the 2013 academic years. Given the focus assigned to retention and college-degree attainment, an imperative exists to ascertain the relationship between developmental course enrollment and student success.

Research Questions

The following research questions were addressed: (a) What is the effect of developmental education enrollment on graduation rates at Texas community colleges? and (b) What is the effect of developmental education enrollment on persistence rates at Texas community colleges?

METHOD

Research Design

This research study was a causal comparative design (Johnson & Christensen, 2008). Archival data were used to determine the extent to which differences were present in graduation and persistence rates as a function of developmental education status at Texas community colleges in the 2009 through the 2013 academic years. The use of archival data in which the independent variable and the dependent variables had already occurred necessitated the use of a causal comparative research design (Johnson & Christensen, 2008).

Participants and Procedures

Archival data were used for the 2009 through the 2013 academic years from the Texas Higher Education Coordinating Board (2015b) Interactive Accountability data system. Both persistence rates and graduation rates of students requiring developmental education and students not requiring developmental education were analyzed. Data were then downloaded from the THECB Developmental Education Accountability Measures Data website. Data were obtained on all Texas community colleges for which data were available. Persistence and graduation rates of students requiring and not requiring developmental education were analyzed. Persistence was defined by the THECB (2015a) as “the rate at which students persist in higher education, often as measured by the percentage of students who continue in higher education from one year to the succeeding year” (p. 48). The following definition for graduation was provided by the THECB (2015a):

Graduation was defined by the THECB as the percentage of a given college-entering cohort of degree-seeking students who graduate in a specific period of time, normally six years. For purposes of the “Baccalaureate Graduation Rates – First-Time-Entering Undergraduates” and “Baccalaureate Graduation Rates – First-Time-Entering Freshmen,” the cohort consists of fall first-time, full-time undergraduates (or freshmen) plus summer first-time students who continue in the fall and are full-time in the fall. The summer students need not be full time in the summer. They are evaluated for full-time status based on their fall enrollment. For two-year institutions, it is the students who graduate with an associate degree or certificate within three years. For four-year institutions, it is the students who graduate with a baccalaureate degree within six years. (p. 36)

RESULTS

Prior to conducting inferential statistics to determine whether a statistically significant difference was present between graduation and persistence rates at Texas community colleges in the 2009 through the 2013 academic years as a function of developmental education, checks were conducted to determine the extent to which the data were normally distributed. Of the standardized skewness coefficients (i.e., the skewness value divided by its standard error) and the standardized kurtosis coefficients (i.e., the kurtosis value divided by its standard error), all four coefficients were within the limits of normality, ± 3 (Onwuegbuzie & Daniel, 2002). Furthermore, the assumption for the Box's Test of Equality of Covariance was met. Levene's Test of Equality of Error Variances revealed that the assumptions were met for both the graduation and persistence rates. Accordingly, a Multivariate Analysis of Variance (MANOVA) procedure was appropriate to use on the data in this study (Field, 2009).

With respect to the first research question, the MANOVA revealed a statistically significant overall difference, Wilks' $\Lambda = .58$, $p < .001$, partial $\eta^2 = .42$, a large effect size (Cohen, 1988), in graduation rates as a function of developmental education enrollment for Texas community college students in the 2009 through the 2013 academic years. Univariate follow-up analysis of variance procedures revealed statistically significant differences in graduation rates in 2009, $F(1, 154) = 69.49$, $p < .001$, partial $\eta^2 = .31$, a large effect size; in 2010, $F(1, 154) = 81.51$, $p < .001$, partial $\eta^2 = .35$, a large effect size; in 2011, $F(1, 154) = 59.39$, $p < .001$, partial $\eta^2 = .28$, a large effect size; in 2012, $F(1, 154) = 67.45$, $p < .001$, partial $\eta^2 = .30$, a large effect size; and in 2013, $F(1, 154) = 97.07$, $p < .001$, partial $\eta^2 = .39$, a large effect size (Cohen, 1988). In every year of the study, students who were not enrolled in developmental education had higher graduation rates than did students who were enrolled in developmental education. Of interest also is that graduation rates only minimally increased by 0.56% from the 2009 academic year to the 2013 academic year. Readers are directed to Table 1 for the descriptive statistics for this analysis.

Table 1. Descriptive Statistics of Graduation Rates as a Function of Developmental Education Enrollment

Academic Year	Enrolled		Not Enrolled	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
2009	9.12	4.84	19.80	10.23
2010	9.46	5.36	21.27	10.23
2011	8.89	5.79	21.83	13.65
2012	9.83	5.92	21.25	10.76
2013	9.68	5.51	20.40	7.88

Regarding the second research question, the MANOVA revealed a statistically significant difference, Wilks' $\Lambda = .80$, $p < .001$, partial $\eta^2 = .20$, a large effect size (Cohen, 1988), in persistence rates for Texas community college students in 2009 through the 2013 academic years as a function of developmental education enrollment. Univariate follow-up analysis of variance procedures revealed statistically significant differences in persistence rates in 2009, $F(1, 154) = 12.46$, $p < .001$, partial $\eta^2 = .08$, a moderate effect size; in 2010, $F(1, 154) =$

15.26, $p < .001$, partial $\eta^2 = .09$, a moderate effect size; in 2011, $F(1, 154) = 9.14$, $p < .003$, partial $\eta^2 = .06$, a moderate effect size; in 2012, $F(1, 154) = 19.89$, $p < .001$, partial $\eta^2 = .11$, a moderate effect size; and in 2013, $F(1, 154) = 35.46$, $p < .001$, partial $\eta^2 = .19$, a large effect size (Cohen, 1988). In every year of the study, students who were enrolled in developmental education persisted at a lower rate than did students who were not enrolled in developmental education. Interestingly, persistence rates for students enrolled in developmental education were 4.84% lower in 2013 than in 2009. Readers are directed to Table 2 for the descriptive statistics for this analysis.

Table 2. Descriptive Statistics of Persistence Rates as a Function of Developmental Education Enrollment

Academic Year	Enrolled		Not Enrolled	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
2009	29.16	9.92	35.46	12.25
2010	30.10	12.45	37.29	10.55
2011	28.82	11.34	34.48	12.02
2012	26.28	7.95	33.22	11.21
2013	24.32	7.21	32.26	9.33

DISCUSSION

In this study, the graduation and persistence rates at Texas community colleges in the 2009 through the 2013 academic years as a function of developmental education were analyzed. The percentage of students who graduated and persisted after developmental education was statistically significantly lower than the percentage of students who were not required to take developmental education courses. Even over a period of time with national efforts such as Achieving the Dream's Developmental Education Initiative and much funds dedicated to the developmental education efforts, students who had were not required to take developmental education courses graduated and persisted at a much higher rate than students who had taken developmental education. A dramatic difference was observed between the graduation and persistence rates for students who were required to take developmental courses and students who were not required to take developmental courses. Clark, Slate, Moore, and Barnes (2013) observed similar results when examining data on Black, White, and Hispanic students who were required to take developmental education and who were not required to take developmental education. Such a difference does not favor the most underprepared incoming Texas community college students.

In this investigation, the most academically vulnerable students were not graduating and persisting as a function of developmental education courses over time. If these students were required to take developmental courses prior to their credit-bearing courses, then they demonstrated lacking academic skills upon entering community college. Subsequently, the pattern of academic struggle continued for these students as they began college, which placed these students at risk for failure.

No attempt was made in this study to determine why developmental education did not yield better results for students required to take these financially costly courses. More

research studies are needed to determine ways that developmental education courses could be more effective and worthwhile. Because much of the literature is related to the overwhelming academic deficiencies of community college students, more research is required to determine how community college students' skills may be enhanced through developmental education. Spending on developmental education is exorbitant; therefore, community colleges must determine improved methods of delivery and better results of developmental education to justify such costs. In recent years, researchers (e.g., Gallard, Albritton, & Morgan, 2010; Hodara & Jaggars, 2014; Sheldon & Durdella, 2010) have begun to examine the effectiveness of new models for developmental courses. To continue to build upon this emerging research, more investigations are needed to provide a complete view of how to serve academically underprepared community college students better through developmental education courses.

Interestingly, some researchers contradict the accuracy of developmental education research studies. Goudas and Boylan (2012) warned against hasty decisions made by higher education administrators who may be preparing to cut developmental education programs based on current data that showed these courses to be unsuccessful. According to Goudas and Boylan (2012), more research is needed to determine how developmental education was defined and how the data were interpreted before drawing conclusions and eliminating programs.

CONCLUSION

In this multiyear statewide investigation, differences in graduation and persistence rates at Texas community colleges in 2009 through the 2013 academic years as a function of developmental education were analyzed. Students who were required to take developmental education courses were graduating and persisting at disappointingly lower rates than were students who were not required to take developmental education courses. David Dodson (2013), President of MDC, a managing partner of the Developmental Education Initiative, reminded educators of the importance of improving developmental education: "This is a pivotal time for developmental education. As community colleges do even more educating of the nation's next generation of workers (and with dwindling resources), . . . too many students are not getting past the starting line, trapped and discouraged in remedial classes" (p. 7).

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ATTITUDES TOWARD SCHOOL INCLUSION AND INTERCULTURAL PERCEPTIONS: A CASE STUDY

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ABSTRACT

This study analyzed the importance student teachers' attitudes towards inclusion and multiculturalism in Teacher Education, Pedagogy and Master's degree in Teacher Education in the School of Education at the University of La Laguna (ULL). Pre-service teachers were classified by the following socio-demographic variables: sex, age, experiences with different people and intercultural experiences, grades and study cycles. The study sample consisted of 1,667 undergraduate students. The "Questionnaire on Attitudes Toward Inclusion and Interculture" (QAII) was based on the "Index for Inclusion" (Booth & Ainscow, 2000). Three dimensions composed it equally: inclusive cultures, policies and practices for testing hypothesis about the differences among students. Socio-demographic variables analyzed in the dimensions of QAII revealed the existence of different student attitudes towards inclusion. These findings implied changes in the curriculum of all degrees in the School of Education at the ULL. This study recommended inclusive education as a basic value for pre-service teacher trainees.

Keywords: inclusion, intercultural, integration, attitudes

INTRODUCTION

Various universal declarations of international organizations have laid the principles of Education for All (EFA) as the Millennium Development Goals providing countries with a situation to work together on a set of reasonable objectives and declaring equality and universalize education for all children. Conventionally, inclusion educational is attentive to certain human beings who share a past of isolation or social exclusion, such as students with incapacity or students with communication and emotional difficulties. Inclusive education is a process of strengthening the capacity of the education system to achieve the EFA strategy, because it is based on the indication that all children should learn together, wherever

achievable, irrespective of dissimilarity. The Salamanca Statement (UNESCO, 1994) urged governments to solve several issues concerning teacher-training programs aligned with special educational needs in mainstream schools. Particularly, research issues about inclusion in secondary schools of the type of inclusive cultures, policies and practices (De Vroey, Struyf, & Petry, 2016). In effect, school strategies to change inclusive practices are developed to moving school staff to search new actions (Ainscow, 2005). For this reason, initial teacher training develops the role of leadership to foster policy cultures of inclusion in the university curriculum (Mayrowetz & Weinstein, 1999). Therefore, regular schools are to respect differences among students, giving them equal learning opportunities and an effective education (Ainscow & Sandill, 2010). Barriers to inclusion in regular schools attribute rigidities in the education system (teaching and learning processes; teachers' expertise, or student groupings) as the main concern for a relevant school system and for quality performance standards combating discriminatory attitudes (Wedell, 2005, 2008). Successful inclusive practice standards and critical elements in schools (values building, personnel training and resources) need to be incorporated in effective teaching programs and performance plans for students with special needs (Poon-McBrayer & Wong, 2013). At the center of this idea is the community of practice; a shared initiative between the school system and the university. Initial teacher training for inclusive practices has been empowered in many countries after studying teachers' attitudes. Despite educational reforms and legislative mandates, changes in teacher inclusive attitudes are slowly implemented meaning thereby resistance towards inclusion. Poor training and lack of resources are partially the causes. According to Rajovic and Jovanovic (2013, p. 95), three fundamental reflective skills should encompass all phases of teachers' professional development: "All stages of teachers' professional development should be linked in a continuum of support to teachers' competence development: from initial education to the induction and further learning." In particular, UNESCO (2009, p. 10) described the main dimensions of a regular school approach to inclusion: "(1) learner characteristics; (2) contexts; (3) enabling inputs; (4) teaching and learning; and (5) outcomes." Two variables are specially emphasized for a commitment to supporting diversity: the characteristics of children with disability according to the nature and severity of their deficiency and the common goal of inclusive education (Sentenac, Ehlinger, Michelsen, Marcelli, Dickinson, & Arnaud, 2013). Conventionally, inclusion educational focused on certain human beings who share a past of isolation or social exclusion, such as students with incapacity or students with communication and emotional difficulties.

Inclusive School Orientations

Teachers' internal and external compromises with families seemed nuclear for schools that introduce inclusive collaborative processes, because they mean a change in roles, skills and attitudes (Kugelmass, 2001). It is not surprising that evaluation studies on inclusive education immersion evidenced the conservative mood of teachers demanding support from principals other educational agents, service delivery options and visits to schools where inclusion is practiced (Idol, 2006). Educational institutions currently legitimate the global movement that calls for effectiveness and efficiency of inclusive schools or new ways of balancing the teaching-learning process planning (Rossello, 2010). Other researchers suggest that school teaching should emphasize facets of student self-determination self-control skills

learning processes. Wehmeyer (2009, p. 60) suggested components for inclusive processes (e.g., “signal a goal, solve a problem, self-defense, self-control, etc.”). Also authors recommend how to help students to develop independence and strategies of production. The educational challenge is to provide knowledge that promotes school leaders’ use of research-based inclusive practices that can be delivered with fidelity. Thus, researchers have studied children attitudes to peers with disabilities finding a disappointing discovery. According to De Boer, Pil, Minnaert, and Post (2014, p. 80), “elementary school students hold the most negative attitudes towards children with intellectual and severe physical and intellectual disabilities than towards students with a physical disability.” Often, many students having moderate deficiencies require intensive instruction (“one-to-one assistance” from a teacher assistant) to master academic competencies (O’Rourke & Houghton, 2008). Therefore, early intervention is key to precluding academic failure. Authors said that there were “two variables” that could explain the responsibility of instructing students at risk: one was the concentration of educators in a school, and the other was special education teachers’ workload in individualized education programs (Giangreco, Suter, & Hurley, 2011). These arguments enlighten component analyses of inclusive education programs. However, Darretxe, Goikoetxea and Fernandez Gonzalez (2013) have casted doubts on that assumption. The revised studies about the Basque Primary and Secondary education, recommended transformations at various levels including the curriculum, structures and, also and most important, adjustments in personal thoughts and teaching performances.

INCLUSIVE ATTITUDES. STRENGTHS AND WEAKNESSES OF VARIABLES

A great deal of research was requested to examine teachers' attitudes, values, feelings and basic expectations towards the integration of inclusion in schools in geographically distant cultures in Western countries. Australian studies on inclusion attitudes of preschool principals, teachers, psychologists and administrators had explored a multitude of factors on ability thinking and teacher responsibilities. Researchers had considered that their attitudes might influence upon teacher recognition of inclusion beliefs, such as the quality of their working experiences with different groups of exceptional learners, as well as training content, exercise intensity, and frequency of communication with the school community (Avramidis & Norwich, 2002). More often, some of the most influential factors seemed to be found on the nature of deficit disorders (variables relating to children), than in teacher descriptions (variables of sex, age teaching experience, grade level taught, experience contact with children with special educational needs, training, teaching beliefs and sociopolitical vision). Another factor is clearly assigned to environment-related variables (human and physical resources of support). Schoolchildren have rights, entitlements, and are esteemed members of their classroom and school groups. Consequently, inclusive policies are embracing well-defined roles and tasks, actions and strategies for organizing, supervising and assessing education programs, maintenance and deliberation. Thus, Santhanam and Hicks (2004, p. 98) underlined three important socio-demographic variables on students: “Perception of inclusion may depend on discipline area, course year level and student gender.” In addition to the specific university training, the human supports variable appears repeatedly as model of

comprehensive teachers' attitudes. Socialization of teachers in cognitive, affective and behavioral variables unchanged cognitive processes of the children's social-cognitive behavior (De Boer, Pijl, Post, & Minnaert, 2012). School curriculum improvement should change alongside teachers' training concerning their awareness of inclusion and its values. Inclusive policies established clear roles and responsibilities, procedures and guidelines for coordinating, monitoring and evaluating education programs, support and reflection. According to Unianu (2012), socio-demographic variables of Romanian teachers (classified by age, sex, professional environment, number of years teaching in the field, number of years teaching in primary school level) should be combined within teacher education programs in order to create an increased "quality awareness" in knowledge, practice and prejudices of inclusive education.

Initial and Ongoing Teacher Training: Two Stages of a Connected Continuum

Lessons learned about school teaching showed that reduction in class size and quality training of teachers is perceived as key topics for an effective inclusion development (Lambe & Bones, 2006). Findings research on teachers' attitudes toward inclusion of students with disabilities discovers disturbing effects. Thus, Cook, Cameron and Tankersley (2007, p. 237) highlighted and clarified teachers' unresponsiveness to inclusion: "General educators' perceived lack of experience, knowledge, or responsibility regarding the instruction of students with disabilities (see Cook et al., 2000), rather than teacher disregard, may explain the higher indifference toward included students with disabilities." There is certain agreement that the opinion of schoolteachers is that they are not sufficiently equipped to teach in inclusive classrooms, because inclusion requires a large vision and specific teaching competencies for all teachers. Meanwhile, Costello and Boyle (2013, p. 141) wrote that attitudes towards inclusive education proved to be positive, although this effect diminished over time. However, "a further concern is that pre-service secondary teachers are much less positive in their attitudes towards their training and perceived competence than towards other aspects of inclusive education." Besides, it is not difficult to combine the concepts of inclusive education and intercultural education when they implement strategies in a favorable immigration school context. Thus, Vlachou, Didaskalou and Voudouri (2009, p. 195) have shown that teachers clung to the textbook, because there were a number of factors acting as barriers to the introduction of curricular adaptations in Greek primary schools, such as "a) lack of time, b) pace and pressures of the curriculum/textbook, c) lack of knowledge and training, (...) linked to the belief that similarity and equal treatment ensures equality." In line with these findings, attitudes to inclusion of preservice teacher training students are insufficiently known (Kim, 2011). Therefore, continuing education must help teachers to change their preconceptions, beliefs and attitudes, because teachers' initial education and in-service training for inclusion are inadequate to prepare them with inclusive approaches and consequently, there is a stated necessity for in-service training (Symeonidou & Phtiaka, 2009).

This review opens spaces of inquiry into the effects of attitudes toward inclusion of future professionals of teaching in schools. However, it is unknown where attitudes of student teachers are related to their socio-demographic (age and sex) and environmental factors

(intercultural and disability experiences, qualifications and study cycle). This issue led to the question:

Research Question 1: What are the differences in attitudes towards inclusion as socio-demographic and environmental factors of students in the Early Childhood Education (EChE) and Primary Education (PE) degrees, Pedagogy Degree (PG) and Master's degree in Teacher Education (MTE) measured by the "Questionnaire on Attitudes toward Inclusion and Intercultural" (QAII)?

METHOD

The hypothesis of this study stated that there were differences in EChE, PE, GP and MTE students' attitudes to inclusion in dimensions and categories of QAII due to the following independent variables: age, sex, intercultural and disability experiences and study cycle.

Participants and Context

All participants (N = 1,667) had been trained in the Faculty of Education at the University of La Laguna (ULL). Demographic information was as follows: the highest percentage of participation was voluntary for women (72.5%) compared to men (27.5%). Participants had a mainly aged between 20-22 years (45.4%) followed by students located in the old cycle of 23-25 years (n = 39.2%). Sample members were divided into degrees and cycles of studies. Thus, the larger sample flood was enrolled in PE (34.6%), followed by EChE (31.7%). Together, 39.5% belonged to the first cycle of the degree program and 34.6% to the second cycle. The increased heterogeneity of students attended the PG (21.8%) ending with the novel contribution of the students of the MTE (11.9%). Data indicated that most of students did not have experience in the intercultural field, or it was low. 93.6% had between 0 to 3 years of experience, while 6.3% had some experience in intercultural environment between 4 to 10 years. Regarding teaching children with disability, 98.1% said they had a practice experience from 0 to 3 years, while 1.9% had a training practice between 4 to 10 years. In order to demonstrate the relevance of the study, the sample of students from the Faculty of Education provided a reasonable ecological and external validity (generalization).

Attitude Instruments

The measurement of attitudes was conducted generally across scales or questionnaires designed ad hoc or through adaptations of existing ones. In the first situation, researchers have made assessments of the psychometric properties of attitude instruments to establish their reliability and validity (De Boer, Timmerman, Pijl, & Minnaert, 2012). Respecting other questionnaires, the Spanish adaptation of the "Index for Inclusion" entitled "Guidelines for the evaluation and improvement of inclusive education" (Sandoval López, Miquel Duran, Giné, & Echeita, 2002) had been a pioneering tool to measure attitudes toward inclusion in schools, whose first adaptations in three Spanish communities were identified by Duran, Echeita, Giné, Miquel, Ruiz, & Sandoval (2005). This guide also has settled and used to measure attitudes toward inclusion in preschools (Booth, Ainscow, & Kingston, 2006).

Along with collecting demographic information on age, sex, educational degrees, cycle of studies, intercultural experience and experience with special education needs, the measure included the “Questionnaire on Attitudes toward Inclusion and Intercultural” (QAII). Alegre and Villar (2011) used QAII as an adaptation of the “Index for Inclusion”. QAII emphasized social values and improved awareness of students’ needs. It is a 45-item questionnaire that measures attitudes of students and conceptualizes them regarding inclusion and multiculturalism in three dimensions and six categories on a 4-point Likert-type scale assuming that the strength/intensity of attitude experiences are lineal: ranging from 1 (*nothing important*) to 4 (*very important*), as other authors had recommended (De Boer, Pijl, Post and Minnaert, 2012; Swain, Nordness and Leader-Janssen, 2012; Specht et al., 2016). The three dimensions and six categories of QAII were the following:

- 1) Creating inclusive cultures (dimension A). This dimension is arranged in 13 items. Its aim is to promote values conducive to the improvement and development of a safe community. Items were distributed into two categories: Building community and Establishing inclusive values.
- 2) Producing inclusive policies (dimension B). This dimension is comprised of 15 items. Its objective is the requirement to guarantee success in the measures and implications for teachers to ensure the inclusion of students. The items have been placed in two categories: Developing the school for all and Organising support for diversity.
- 3) Evolving Inclusive Practices. This dimension includes 17 items. Its aim is to advance the purposes of collaboration, cooperation and involvement of the educational community. The items are combined into two categories: Orchestrating learning and Mobilising resources.

Validation Procedure

QAII was administered anonymously and voluntarily to the entire sample of students being completed during class hours in their degree program. Participants were provided time in class to complete the survey. Information about the investigation project’s aims and methods was read to the students.

The central QAII analysis involved a confirmatory factor analysis, whose phases were the following: QAII definition, data collection, intercorrelations matrix, extraction of factors determining the number of factors, factor rotation, interpretation and validation of factors model; in short, to elucidate the structure of regularity and trends in the items of the QAII or the “underlying structure of observed variables” (Mvududu & Sink, 2013, p. 79). It was used an analysis of the key factors for extracting components in the initial solution, and a varimax rotation for the final solution. Weights equal to or less than 0.30 were suppressed for moderate or high weights, and similarly, factors comprising at least three items were acknowledged. The items were grouped into eight factors explaining 47.6% of variance. The first factor (eigenvalue: 8.243%) was composed of seven of the 17 items of Orchestrating learning and Mobilising resources of dimension C. The second factor (eigenvalue: 15.085%) was formed by six of the 15 items corresponding to categories Developing the school for all and Organising support for diversity of the dimension B. The third factor (eigenvalue:

21,918%) was comprised of seven items of categories Organising support for diversity of dimension B and Orchestrating learning of dimension C. The fourth factor (eigenvalue: 27,836%) was created with four items of the same categories of the third factor. The fifth factor (eigenvalue: 32,917%) was composed of three items in categories Establishing inclusive values of dimension A and Developing the school for all of dimension B. The sixth factor (eigenvalue: 37,981%) was composed of three items in the categories Building community and Establishing inclusive values of dimension A and Organising support for diversity of dimension B. The seventh factor (eigenvalue: 42,579%) was formed by five items in categories Building community and Establishing inclusive values of dimension A and Orchestrating learning of dimension C. The last factor (eigenvalue: 47,064%) was composed of three items in category Building community of dimension A.

The QAI reached a reliability coefficient of .919 through Cronbach's alpha. It was also calculated the internal consistency coefficient of each of the six categories of the three dimensions, being significantly higher than the level in Orchestrating learning ($\alpha = .811$), followed by Mobilising resources ($\alpha = .757$), both of dimension C. Four categories were below the limit of acceptance 70: Organising support for diversity ($\alpha = .665$), Building community ($\alpha = .669$), and Developing a school for all ($\alpha = .673$). Finally, dimension A values had the lowest coefficient ($\alpha = .590$) indicating that the construct or concept measured in this dimension was not sufficiently present in the six items in the category. It should be acknowledged that in the validation of the instrument, researchers found variability for the dimensions of QAI that reflected the inclusion knowledge and experience of pre-service teacher students.

RESULTS

Analysis of Students' Attitudes

QAI provides descriptive data on university student attitudes. Means scores for each subscale are reported. Besides, Student t test compared means of student characteristics. It revealed significant differences in sex variable, confirming the effects in dimension A, specifically in items 1, 2, 3, 5 and 6 of category Building community and in items 8 and 11 of Establishing inclusive values ($t = 4639$, $p = <.001$). Furthermore, it was found significant differences in Developing the school for all (items 14, 15, 16, 17, 18 and 19) and Organising support for diversity (items 20, 21, 22, 23, 24, 25, 27 and 28). Finally, there were significant differences in Orchestrating learning (items 29, 30, 31, 33, 34, 35, 36, 37 and 38) and Mobilising resources (items 41 42 43 44 and 45). In response to the independent variable cultural experience significant differences were found in item 9 Establishing inclusive values ($t = 2,448$, $p = <.014$), while in the independent variable disability experience, researchers revealed significant differences in item 10 of Establishing inclusive values ($t = 3095$, $p = .004$), items 16 and 18 of Developing the school for all, items 20, 23 and 27 of Organising support for diversity, and item 36 ($t = 3.564$, $p = <.001$) of Orchestrating learning.

Other tests were conducted to evaluate differences among participants in the variables age, educational degrees, cycle of studies, intercultural experience and experience with

special education needs. One-way analysis of variance compared means obtained in QAI items (see Table 1).

Table 1. Table 1. Mean scores, standard deviations, p values (one-way ANOVA), Levene test and post hoc Tukey test for categories of items according CAII Age, Degree and Cycle of studies

Categories and items	Levene	df	F	p	Post hoc Tukey	Means	σ
AGE							
<i>Building community</i>							
5. Existence of teacher - family collaboration.	.059	5	7.966	.000	Age 17-19 with 23-25 Age 17-19 with 26-28 Age 17-19 with 29-31 Age 17-19 with +32 Age 20-22 with 23-25 Age 20-22 with 26-28 Age 20-22 with 29-31	17-19 = 2.75 20-22 = 2.94 23-25 = 3.12 26-28 = 3.21 29-31 = 3.48	.888 .936 .884 .920 .849
<i>Establishing inclusive values</i>							
8. Have high expectations for all students	.411	5	2.874	.014	Age 17-19 with 20-22 Age 17-19 with 23-25	17-19 = 2.84 20-22 = 3.18 23-25 = 3.22	.934 1.495 .835
9. The educational community must share a philosophy of inclusion	.050	5	6.404	.000	Age 17-19 with 23-25 Age 17-19 with 26-28	17-19 = 3.08 23-25 = 3.41 26-28 = 3.44	.822 .733 .725
<i>Organising support for diversity</i>							
24. Support for students learning Spanish as a second language should be coordinated with other types of educational support.	.391	5	2.481	.030	Age 20-22 with 23-25	20-22 = 3.24 23-25 = 3.38	.724 .844
25. Educational guidance policies and psychopedagogical intervention measures are linked to curriculum development and pedagogical support.	.993	5	3.149	.008	Age 20-22 with 23-25	20-22 = 3.27 23-25 = 3.50	.694 .787
<i>Orchestrating learning</i>							
33. Learning strategies should be collaborative	.005	5	2.502	.029	Age 20-22 with 23-25	20-22 = 3.44 23-25 = 3.57	.699 1.111
DEGREE							
<i>Building community</i>							
5. Existence of teacher - family collaboration	.005	3	11.668	.000	EChE with PE EChE with PG PE with PG PG with MTE	ECHE = 2.89 PE = 3.08 PG = 3.25 MTE = 2.98	.899 .948 .873 .890

Categories and items	Levene	df	F	p	Post hoc Tukey	Means	σ
6. Teachers and School Board must work well together.	.747	3	4.869	.002	EChE with PG EChE with MTE	ECHE = 3.29 PG = 3.45 MTE = 3.44	.702 .683 .665
7. All institutions of the community should be involved in the center	.462	3	2.970	.031	EChE with MTE	ECHE = 3.20 MTE = 3.36	.749 .690
<i>Organising support for diversity</i>							
24. Support for students learning Spanish as a second language should be coordinated with other types of educational support	.782	3	3.275	.020	EChE with MTE	ECHE = 3.23 MTE = 3.40	.750 .689
<i>Orchestrating learning</i>							
40. Should you bet on the effective participation of all students in the complementary and extracurricular activities?	.697	3	5.461	.001	EChE with PE EChE with PG	ECHE = 3.12 PE = 3.27 PG = 3.31	.818 .787 .753
CYCLE OF STUDIES							
<i>Building community</i>							
5. Existence of teacher - family collaboration.	.112	3	6.111	.000	1° Cycle with PG MTE with PG	1° C = 2.96 MTE = 2.97 PG = 3.24	.943 .889 .872
6. Teachers and School Board must work well together.	.546	3	3.738	.011	1° Cycle with 2° Cycle	1° C = 3.30 2° C = 3.44	.699 .664
<i>Organising support for diversity</i>							
20. Coordination of all forms of support.	.328	3	3.749	.011	1° Cycle with 2° Cycle 1° Cycle with PG	1° C = 3.43 2° C = 3.54 PG = 3.56	.714 .609 8.94
<i>Orchestrating learning</i>							
42. Knowledge and optimal use of community resources are essential.	.384	3	3.083	.026	1° Cycle with 2° Cycle	1° C = 3.37 2° C = 2.48	.739 .690

Subsequent ANOVAs were established based on the post hoc Tukey test, which revealed differences in Age: item 5 in category Building community; items 8 and 9 in category Establishing inclusive values; items 24 and 25 in category Organising support for diversity, and item 33 in category Orchestrating learning. The Degree variable caused differences in items 5, 6 and 7 of category Building Community; item 24 of category Organising support for diversity, and item 40 in category Orchestrating learning. Finally, the variable Cycle of studies caused differences in items 5 and 6 of category Building Community; item 20 of Organising support for diversity, and item 42 of Orchestrating learning. Overall, students had different inclusion perceptions by age, degree, cycle of studies, although the effect sizes were small.

DISCUSSION

Attitudes of 1,667 students differed among themselves on items, categories and dimensions of QAI in five independent variables that helped the researchers to conjecture attitude changes. The survey supports the ideal of inclusion but inconsistencies in the findings also appear due to the reliability of some QAI subscales. In this sense, attitudinal methods and measures tend to reveal lower consistency than do attainment tests (Cook, Cameron and Tankersley, 2007).

Age was stratified into six subgroups, and students showed differences in all dimensions, mainly in Dimension A. Major attitudes discrepancies between 29 to 31 year-old students was found in "Collaborative faculty-family existence." Also, 23 to 25 year-old students, representing 39.2% of the sample differed from other subgroups in two items of Establishing inclusive values. Finally, 23 to 25 year-old students differed from 20 to 22 year-old students in Organising support for diversity. As Unianu (2012, p. 903) acknowledged, "teachers with more experience in the primary school are more convinced that they are capable to adapt the educational activity in order to take into consideration all children's needs."

There were significant differences among sex students. The highest differences were found in Organising support for diversity. Similarly, significant differences were found in six items of Developing the school for all. And so it was with the highest average among women in five items of Build community and in two items of Establishing inclusive values. Finally, nine items of Orchestrating learning and five items of Mobilising resources had the highest average in women. This result is one that has shown diverse effects in the literature (Specht et al., 2016). If we take into consideration the attitudes at the school level students, one might assume that girls in school first and then college students have more positive attitudes towards inclusion. According to De Boer, Pijl, Minnaert and Post (2014, p. 578), "the outcomes revealed an overall significant difference between boys and girls, indicating that boys hold significant more negative attitudes than girls."

Measuring the amount (number of years) of experience in multiculturalism although unknowing the nature of such experience (e.g. bilingual education, immigration, ethnic minority, the presence of a multicultural faculty at school, etc.), originated a significant difference in Establishing inclusive values between the two groups, with the highest average in students who had 4 to 10 years of experience. As Unianu (2012, p. 903) found, "teachers who work with children with different ethnical backgrounds are more opened to the idea of inclusion than those who don't work with such categories of children." The fact that the difference will be placed on an item which calls for extending the commitment to the philosophy of Building community helps to reflect on the desirability of intercultural contact, communication and social opportunities. However, researchers have weighed the low power of the independent variable to produce effect on the terms thus defined, although teaching practices to interact with students from different cultures cause effect "contradictions."

Research literature has endorsed that previous experience with special education students was associated with high levels of self-efficacy and positive attitudes. However, it has not been sufficiently weighed the differences among students by the size of the experience, and when it is done as in this study, it has not clarified its nature. However, attitudinal differences between the subjects of the two groups in several categories of items were noticed, mainly in three items of Organising support for diversity and in two items of

Developing the school for all, and to a lesser degree, in item 9 of category Establishing inclusive values and item 36 of Orchestrating learning. This variety of differences in attitudes towards statements include changes in the experience because they are complicated (note that the averages were higher in six of the seven items on students who were between 0-3 years of experience), as it has been found in a study: "It seems that preservice teachers' field experience with students with disabilities and their personal experiences with people with disabilities exert complex influences on their attitudes toward inclusion" (Kim, 2011, p. 367). This result direction seems consistent with a related finding. In this sense, Peebles and Mendaglio (2014, p. 1332) declared: "This study concluded that there was no interaction effect for prior experience and self-efficacy gains over time". As a final summary, we cite the following passage from Boyle, Topping and Jindal-Snape (2013, p. 529): "Interestingly, the findings of Villa et al., (1996) indicate that years of experience in the inclusion of children with additional support needs had no significant impact on the attitudes of teachers in the field of general education."

Four subgroups were considered in the degree variable. EchE students marked the most varied significant differences. So, when we compared them with PE students there was a difference in four items of three categories (Building community, Organising support for diversity and Orchestrating learning); and when compared EchE and PG they were significantly different on two items in Building community and Orchestrating learning. EchE students had lower positive attitudes than students in other degrees, particularly with MTE students, aligning this result with another Australian finding: "An interesting point of note was that participants enrolled in a postgraduate course for teacher education were significantly more positive in their attitudes towards inclusive education than participants enrolled in an undergraduate course" (Costello & Boyle, 2013, p. 139).

The course of study as an independent variable alluded to students in their first two years of college degrees (EchE and PE) as opposed to the rest of the student subgroups, who had more years of experience. Some previous studies have supported the incorporation of this variable, as Costello and Boyle (2013, p. 138) had stated: "Participants reported more positive attitudes towards inclusion in their first year of university than in following years. This did not support the hypothesis that as pre-service secondary teachers' progress through their professional training, their attitudes towards inclusive education would improve". In the present work, undergraduates differed from the second cycle students in three items of Building community, Organising support for diversity and Mobilising resources, and curiously MTE with PG student practices in item 5 of Building community. The extension of the curricular offerings to students of the MTE does not seem to have marked differences in attitudes toward inclusion for the remaining students.

CONCLUSION

From the findings of this study, there were significant differences in EChE, PE, PG and MTE students in attitudes towards inclusive education as measured by QAII, due to variables such as age, sex, intercultural experience, expertise in disability, and degree and course of study. In this context it is important to recognize the importance of measuring the attitudes of university students working in contexts of social integration. The tasks hinge around inclusive

cultures, policies and practices. Special education training challenges a heterogeneous university student population where sex makes a major difference among students.

Implications

This study has explored an adaptation of the “Index for Inclusion” (Booth and Ainscow, 2000) to develop and evaluate inclusive schools, and has provided a clear picture of the La Laguna context of pre-service teachers and educators. University students believe that teachers and families should collaborate in order to include children in regular classrooms, cooperate to change teaching strategies for all children in classrooms, and develop knowledge and skills for building a responsible inclusion community.

However, the study has some limitations regarding the university measure. QAI requires further investigation to solve the reliability of subscales. As the “Index for Inclusion,” the QAI is neat in the statements and may cause difficulty in curriculum implementation at university level, but its ductility can cause significant impact on research on inclusiveness in the School of Education. All student teachers should be trained in QAI while schoolteachers should receive in-service training to handle included children. Also, the ULL should put in place a compulsory inclusive university policy. The findings point to the need of an analysis of university support mechanisms at the forefront of teacher educators’ training. There should be a specific budget for inclusive university attitude training so that the issue of Mobilising resources can be addressed. A broader university agenda must be advocated, in favor of a transformative university-wide approach and more flexible EChE, PE, PG and MTE programs responding to a diversity of student teachers in a rapidly changing society. Knowledge of the demographic differences found in the Faculty of Education can aid educators in adapting curriculum programs to suit the demographic requests of their corresponding students.

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STUDENT PERCEPTIONS OF INNOVATIVE LEARNING ENVIRONMENTS IN HIGHER EDUCATION

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ABSTRACT

This article explored the learning experiences of students and instructors who participated in a series of teaching practices that employed a classroom climate measure to assess innovative teaching strategies at the University of Seville. Study participants included 14 faculty members representing 14 departments, 9 career tracks, and 665 students. In defining student demographic diversity, researchers outlined visible dimensions. Classroom climate was collected using the “Classroom Innovation Climate” (C.I.C.). In addition, interviews with 14 faculty members were conducted in order to find out why they answered the curriculum practice conferences in the way that they did. Data showed that the C.I.C. had sound operational characteristics, thus suggesting that it should prove to be an significant research tool for classroom teaching and curriculum innovations aimed at improving students’ learning environment perceptions. It concluded that lecturers’ deliberations led to engagement in pedagogical knowledge. To effectively manage the diversity climate, it was recommended strategies for improving the classroom psychological climate and structural diversity of innovations. Future inquiry opportunities for additional climate tool development and use of the research device were recommended.

Keywords: climate questionnaire, teaching-learning environment, classroom innovation

INTRODUCTION

Student learning and its relation to students’ perceptions of the teaching–learning climate have been extensively reviewed in different culture backgrounds and structural school contexts overtime (e.g., Dorman, 2000; Worthington, 2002; Barfield, 2003; Lindblom-Ylänne, Pihlajamäki, & Kotkas, 2003). Research has mostly focused on the relation between students’ learning perceptions and their curriculum participations of the teaching–learning situation across subject areas (Bell & Aldridge, 2014; Bloomfield & Nguyen, 2015). Nevertheless, universities are facing curriculum changes to deliver responsible information

about their educational quality to members of university administration and democratic society to foster a responsible community of learners (Boersma, Dam, Wardekker, & Volman, 2016). Yet, few measurement tools that purportedly evaluate university classroom innovations really assess important areas of classroom life (e.g., student prior knowledge, collaboration, motivation, etc.), and other organizational constructs in academia (autonomy, cohesion and pressure) (McMurray & Scott, 2013).

In order to rise a comprehensive classroom instrument, the University of Seville has used a research-based tool for studying the features of their teaching-learning innovations. The extent of institutional classroom innovations was one design choice when dealing with a diversity of undergraduate students and a growing societal demand for graduation excellence (Piché, 2015). This article focused on classroom climate because many Spanish universities have become aware of the importance of increased faculty-student engagement to an outstanding learning environment. Climate innovation was an important vector because it provided a variety of student perceptions that can better meet the needs of diverse student groups, thus fostering in students a strong sense of personal meaning and life satisfaction (Smith, 2013; Kaçire, Kurtulmuş, & Karabıyık, 2015), as well as academic satisfaction (Price et al., 2005).

OVERVIEW OF CLASSROOM CLIMATE

The field of school and classroom learning environment studies has offered an important framework for exploring the relationships between student perceptions of learning and cognitive and emotional outcomes (Dorman, 2000; Dorman, 2014). The assessment of classroom teaching-learning environments has just followed a clearly established research convention and has undergone a remarkable expansion and increasing trend of measurement to work across national borders (Fraser, 1998). This approach to reasoning postulated that the nature of classroom learning environments was influenced by student perceptions, which were intimately associated with the students' demographic characteristics and other background and personal factors (Worthington, 2002; Barfield, 2003; Dorman, 2014).

Perceptual assessment outlined students' interpersonal relationships as a prelude to enhancing their academic focus and, hence, satisfaction with the social environment of the class group (Lindblom-Ylänne, Pihlajamäki, & Kotkas, 2003; Kaçire, Kurtulmuş, & Karabıyık, 2015). Perceptual assessment could be used for feedback on instructors' innovative teaching and learning processes in the form of teaching competencies when paired with other strategies for improving the structural diversity of teaching-learning innovations (Schelfhout, Dochy, & Janssens, 2004; Price et al., 2005; Bell & Aldridge, 2014). Some of the teaching-learning quality factors investigated included student perception assessment; therefore, the psychosocial characteristic of classrooms were a relatively valid source of academic efficacy (Wierstra, 1999; Strayer, 2012; Smith, 2013), and was targeted at ensuring a teaching quality process (Villar & Alegre, 2004). Instructors were meaning makers. They constructed class actions and interpreted their own voices and beliefs concerning teaching-learning innovations (Wildman, Hable, Preston, & Magliaro, 2000; Marra, 2005).

Classroom Environment Questionnaires

The increased emphasis on quality learning was creating a greater need for valid and comparable measures of subjective student experience as an indicator that classroom teaching and university campus were meeting the aims of their curriculum principles. In response to those requests, measures of student learning perception have grown to importance. Universities had multiple types of outcomes and the easiest type of information to gather was to include classroom climate as a measures of student-learning (Lodge & Bonsanquet, 2014). When the learning experience of students was assessed, it was often based on classroom teaching processes and strategy preferences or on data collected from students by means of climate questionnaires (Baeten, Dochy, Struyven, Parmentier, & Vanderbruggen, 2016). There were important problems with the classroom climate instruments currently used to assess the student performance, although researchers described their validity and reliability to assess the degree to which classroom learning environment was consistent with known principles for promoting development of professional faculty members (Dallimore, Hertenstein, & Platt, 2004; Cleveland & Fisher, 2014). Many of the instruments for assessing classroom climate had their roots in psychosocial or learning sciences (Elvira, Beusaert, Segers, & Imants, 2016). Classroom climate had been found to be related to important educational outcomes such as enhanced academic achievement, reflection on feedback generated using the actual and preferred climate instruments (Wildman, Hable, Preston, & Magliaro, 2000; Bell & Aldridge, 2014). Also, in engagement in a collective, significant, deep and transfer-oriented way of social learning (Cavanagh, 2015; Boersma, Dam, Wardekker, & Volman, 2016) and students' enjoyment in chemistry classrooms (Giallousi, Gialamas, & Pavlatou, 2013). Similarly, learning environment had been proved to produce other educational results such as college students' perceptions of a classroom teaching innovation (Barfield, 2003), general satisfaction of university students (Thomas & Galambos, 2004; Price et al., 2005; Kaçire, Kurtulmuş, Karabiyik, 2015) or alienation of students to university (Kurtulmus, 2016). Furthermore, researchers had used questionnaires as dependent variables in order to reveal student changes in learning approaches and learning preferences prior to and after a curriculum innovation experience to inform academic members of the staff about curriculum decisions (Chung & Chow, 2004) or guide new department teaching-learning policies.

Classroom climate questionnaires are composed of scales measuring different constructivist orientations. These philosophies were used as a basis for detecting and developing detailed scales that would give a suggestion of the extent to which practices coherent with these atmosphere principles have been present (Schultz-Jones & Ledbetter, 2013; Taylor & Fraser, 2013; Bell & Aldridge, 2014; Dorman, 2014; Kaçire, Kurtulmuş, & Karabiyik, 2015; Soebari & Aldridge, 2015; Kurtulmus, 2016; Waldrip, Yu & Prain, 2016). Measurement scales were important because they allowed us to understand an underlying construct. Usually the target construct was a variety of learning situations: readiness to learn, assessment processes and engagement (Waldrip, Yu, & Prain, 2016), task orientation (Dorman, 2014), or autonomy, cohesion and pressure (McMurray & Scott, 2013). The initial pool of items of a scale was over inclusive, which was tested along with other variables. In this sense, factor analysis played a crucial role for discriminating validity of scales (Schultz-

Jones & Ledbetter, 2013; Ottmar, Konold, Berry, Grissmer, & Cameron, 2014; Elvira, Beausaert, Segers, & Imants, 2016).

Objectives

The goal of this study was to seek evidence of a classroom climate that comprised student perceptions and expectations of their learning processes. Specifically, it aimed at:

- A. Analyze data from the “Classroom Innovation Climate” (C.I.C.) to test the following assumptions about the tool:
 - Person factors such as student age and sex.
 - Course-related characteristics (year cohort, and other student different academic factors).
- B. Describe students’ perceptions of innovative teaching environments and to compare their classroom climate dimension scores with those of University students with different background factors.
- C. Contribute to a better understanding of how innovative classroom tasks and teaching activities were employed as resourceful means for learning in colleges and faculties (e.g., instructors as teaching researchers were constantly comparing pieces of classroom teaching information and proposing sets of teaching concepts that were plausible for understanding patterns of classroom teaching actions).

Consequently, the research questions for this study were:

- What was the relationship between students’ perceptions of the classroom environment and their C.I.C. scores?
- What sort of exploration of particular events and multiple sources of evidence faculty members followed to categorize teaching knowledge practices?

METHOD

Participants

The sample used in this study consisted in 14 faculty representing 14 departments, 9 career tracks, and 665 students from one Spanish public university. The data were hierarchical with students nested in departments within the university. Most of the students were female (68%). Also, 68.4% of students were between the ages of 21 and 30 years. In addition, 61.7% of the respondents were enrolled in the first course. Students performed well in College grades. In regard to ability, more than 44% had a fair scholastic aptitude score.

Table 1. Descriptive information for ten C.I.C. scales

Scales and n°. of items	Instructional principles	Sample item
Clarification (2 items)	The extent to which University students are given explanations, examples and multiple forms of understanding a problem or difficult material	Item 1. Instructor clarifies difficult aspects of this innovative activity
Student autonomy (4 items)	The extent to which student perception that University teaching is student-centered and that he has been offered the opportunity to make decisions on his learning	Item 3. This innovative activity has changed my vision on the University student's role
Instructor scaffolding (3 items)	The extent to which instructors demonstrate the steps or structure of a problem and provide keys and help to complete the innovative activity with success	Item 7. This innovative activity gives me keys to solve problems but it doesn't direct me to a specific answer
Student prior knowledge (3 items)	The extent to which learning activities are personally beneficial and related to University students' prior knowledge and practical skills	Item 10. This innovative activity relates new information to what I have previously learnt
Connections (4 items)	The extent to which University students establish their own knowledge connections and generate their own learning products	Item 13. This innovative activity helps me to investigate, build and relate ideas and facts
Interrogation/discussion (4 items)	The extent to which conjecture, questioning, and discussion in this innovative activity is fostered	Item 15. This innovative activity encourages University students to ask questions and discuss answers given in a book
Explorations based on new technologies (2 items)	The extent to which new technological tools and other academic resources facilitate University students' generation of ideas and knowledge construction	Item 17. This innovative activity helps to develop other study capacities in University students (e.g., handling of tools, document search, library use)
Collaboration and negotiation (2 items)	The extent to which University students socially interact with other students to give meanings to and reach agreements on teaching activities and viewpoints	Item 19. I share ideas, answers and visions with my instructor and peers in this innovative activity
Motivation (3 items)	The extent to which University students are involved in an innovative activity	Item 21. I am motivated to work in this innovative activity
Evaluation (2 items)	The extent to which University students evaluate an innovative activity	Item 24. I believe that this innovative activity develops instructors' interest in teaching

Data Collection Tools

Two instruments were administered to students:

“Classroom Innovation Climate” (C.I.C.). It consisted of 25 items that corresponded to ten principles of cognitive and social psychology which assessed clarification, student autonomy, instructor scaffolding, student prior knowledge, connections, interrogation / discussion, explorations based on new technologies, collaboration and negotiation, motivation and evaluation. In choosing constructs and *devising* items for climate *instruments*, researchers have followed similar approaches. Similar constructs have been devised in other climate instruments (Nguyen, Newby, & Skordi, 2015). The C.I.C. contained relationship dimensions, personal development dimensions, and system maintenance and system change dimensions, as other instruments grounded in Moos’ (1974) theory (Strayer, 2012). Each item employed a 5-point Likert response format (strongly disagree = 1, disagree = 2, not sure = 3, agree = 4, strongly agree = 5), as it had occurred with other climate instruments (Parpala, Lindblom-Ylänne, Komulainen, & Entwistle, 2013; Dorman, 2014). The description of the ten learning dimensions or scales, instructional principles, and simple items from the cognitive apprenticeship literature are described in Table 1. Internal consistency and reliability of the various scales was assessed using Cronbach’s α , with a general and adequate value of $\alpha = .8635$, which was higher than 0.60 as the criterion some researchers used for acceptable internal consistency (Elvira, Beausaert, Segers, & Imants, 2016).

“College Undergraduate Survey” (C.U.S.). This survey tried to describe the diverse perspectives of the study body. The tool was composed of 17 closed presentation questions in a multiple-choice format. The variables were really tapping the respective students’ demographic factors (i.e., standard demographic and academic characteristics), which were chosen as independent variables to meet the first objective of the study.

Procedure

Quantitative and qualitative methods were merged to search the classroom’s learning environment and the instructors’ subjective knowledge. Other researchers had outlined the value of a mixed-methods approach (Thomas & Anderson, 2014).

The C.I.C. and C.U.S. were given to students halfway through the course. Also, the 14 faculty members taught their courses using teaching innovation strategies: initiation research activity, teaching research, study techniques, engineering simulation, entrepreneurs projects, management participation approach, management case-studies, design of art curricular materials, internet applications, new technologies, resources for information exegesis, role-playing of conflicting situations, thematic classroom of Architecture, and attribution of individualized tasks.

The 14 instructors held group meetings, semi-structured interviews and informal conversations with the researchers to focus on classroom innovation processes and assessment issues (e.g., practice coding processes, pedagogical views), in order to write down a rationale for adopting an interpretative methodology to ensure assertions and constructions arising from those interviews. Researchers assumed that an instructor’s conception of what pedagogic knowledge was and where it came from – that was, their epistemological beliefs – would have an impact on how they taught (Marra, 2005). After class selection, 39 observers

were enlisted to be part of a data-collection team to observe and take field notes for the classroom innovations. They wrote down 79 narrative vignettes, and interviewed 84 students. Observers were reminded to create a climate of trust with instructors and students through non-threatening and objective behavior. All observers were trained specifically for this study using a blank sheet on which they recorded everything that happened. They also collected other pieces and artifacts including instructors' lesson plans, to better describe instructors' teaching practice. In addition, observers administered the C.I.C. to students. The purpose of the interviews was to understand the meanings constructed by students of their college years. During dialogue, ethical considerations for the students (e.g., consent, privacy, etc.) were maintained.

However, each interviewer made an interview script for each student adapted to meet the teaching situation, composed of 11 structured questions (e.g., what teaching means to you?, what do you think about the teaching style and the materials being pursued in this course? how do you think your learning can improve?, etc.). Additionally, instructors answered questions about the purpose of their innovation from a structured interview designed by the researchers. The 11 questions contained elements related to teaching innovation: how can you introduce an innovation of university teaching in the organizational culture of your college or faculty?, how had it affected your innovation to students: changes in the form of study, modification of expectations, solidarity and assistance in learning, etc.? All observations and interviews were transcribed and coded by the participant instructors, which produced valuable data that served to focus the research effort during the qualitative analysis.

Statistical and Qualitative Analyses

The purpose of this study was to relate innovative learning environments in a way that informed curriculum change. Consequently, mixed-methods data exploration procedures were used. First of all, single-factor variance *analysis (ANOVA)* was the method *used to compare* values of teaching innovations, and grounded-theory as an inductive methodology leading to the emergence of conceptual categories. To gain insight into how students describe their classroom-learning environment, the aforementioned 10 C.I.C. scales were computed by ANOVA tests. The stages of the grounded theory were sequential: preparation, data collection, and constant comparative analysis.

RESULTS

Classroom Climate Evaluated through Student Characteristics

One-way ANOVAs for C.I.C. subscales with the student as the unit of analysis and course level, department and subject matter membership as the main effect showed that each subscale differentiated between course levels, departments and subject matters ($p < 0.05$). F-statistic yielded significant results in five dimensions included in Type of Pre-University Course, Academic background, and Complementary activities while studying. Also, student groups with different Age, Complementary jobs while studying (e.g., you help doing tasks at

home) characteristics were significantly different in four classroom climate dimensions. This last result also happened with the student characteristic Repeat subjects in other courses. Other student characteristics had a minor effect.

Qualitative Findings: Pursuing Teaching Professional Development to Fulfill a Need for Classroom Climate Teaching

Figure 1 summarized a concept map of all codes or reduced topics for all innovations. The central node was *Instructional Strategies* that showed an inveterate yearning for Inquiry. The intellectual and emotional relations in working groups characterized a kind of Classroom teaching style. *Teaching skills and techniques* affirmed their presence before, during and after class teaching communication. The departure was from Objectives, aims and expectations. The appearance of the class teaching was a road made up of categories wrapped by Presentations of ideas and concepts by means of Resources. For this reasons all classes crumbled in Activities, which tried to give participation to students. Values developed from group work and Audiovisual media and resources had several modes of expression. Finally, *Evaluation* reeled off understanding of a possible learning.

The articulation of instructional strategies depended on the flexibility of *College and classroom factors* that converged in the Context factors. The Physical environment reflected the architecture on which the faithful image of a teaching style was. Teaching-learning time had been adapted for innovations. A good Classroom atmosphere valued knowledge as a socially constructed. In that situation, Relationships referred to the tangible atmosphere of social meetings. Collaboration and cooperation in teaching provided the best chemistry for Student *interaction and classroom factors*. Personal change occurred when students were motivated or had learning interest. Finally, *Learning results* generated set of projections, which had Implications for students' decisions.

DISCUSSION

A number of student characteristics were found to have a relative impact on student assessment of innovative teaching, as in Worthington's (2002) study. This pattern, in which students perceived different learning environment due to course level, department and subject matter, replicated some past research (Taylor & Fraser, 2013; Ward & Fisher, 2013).

Personal characteristics and beliefs of students apparently guided their perceptions of learning environments (Boersma, Dam, Wardekker, & Volman, 2016), although further investigations of student feedback and learning styles should be tested for informing the enhancement of classroom innovation atmosphere. These findings, that the success of the innovation teaching approach could have been limited, were corroborated by observations and interviews. Further, interviews with faculty provided information about contextual factors that influenced the translation of the teaching innovations ideas into practice. Much rouse for University curriculum reform had focused on changing University teaching, but this research suggested a need to change the teaching setting from a cognitive perspective taking into consideration that the "process requires instructors to think about their discipline in non-traditional ways" (Marra, 2005, p. 136).

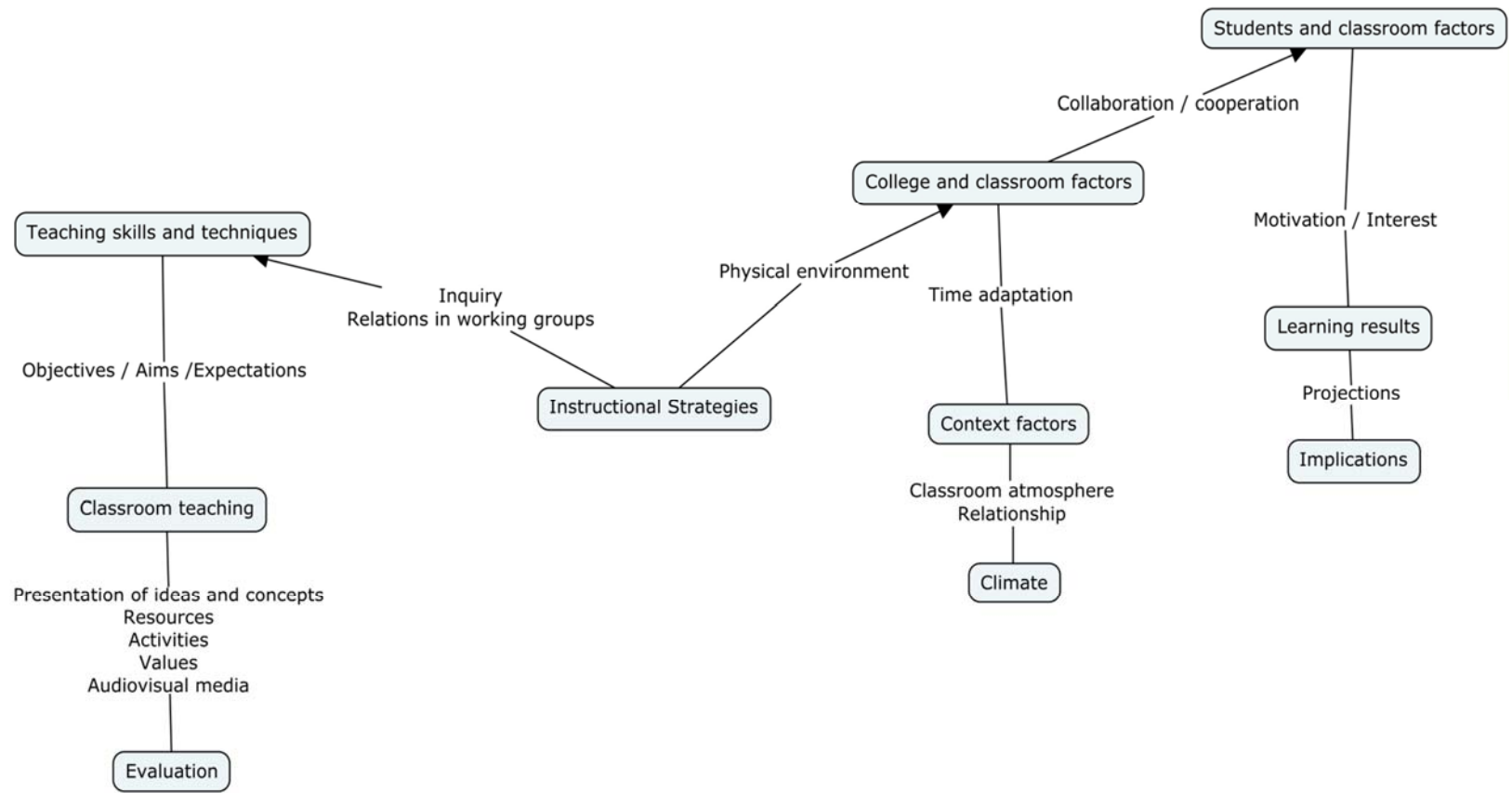


Figure 1. Conceptual map of codes for innovations.

This article had proposed a way for measuring university innovation diversity that recognized the need for curriculum change and planning (Piché, 2015). Other research avenue was to investigate classroom climate through faculty collaborative research (Lodge, & Bonsanquet, 2014).

Moreover, all teaching innovations exhibited the following characteristics:

- Fostering an inquiry style of teaching and creating a supportive classroom environment that enhanced the quality of participation (Dallimore, Hertenstein, & Platt, 2004).
- Valuing interdisciplinary composition of groups (Wildman, Hable, Preston, & Magliaro, 2000).
- Creating significant tasks that provided students the interest to cope with teaching-learning complexity episodes (Eilam & Poyas, 2006).
- Nevertheless, students were afraid about their tutors' over-reliance on student-centered tactics at the expense of organization and direction (Baeten, Dochy, Struyven, Parmentier, & Vanderbruggen, 2016).

CONCLUSION

Findings showed that students' perceptions of class innovation teaching were different according to University curriculum factors. In accordance with these results, it can be concluded that in order to minimize dissension of undergraduates to their curriculum, faculty must be advised to perform a more easygoing teaching approach to the diversities of their students.

Implications

Future research needed to utilize longitudinal data to more fully account for the causal effects of students' instructional and learning preferences on classroom climate diversity. Concerning the relationship between innovation preferences, approaches to classroom climate learning and student characteristics, the study assumed a minor potential of constructivist teaching practices. So, innovations preferences should be measured through a newly developed questionnaire in order to predict course performance, self-efficacy or attitudes to course teaching. Also, a path analysis might be conducted to determine the causal effects among a future composite learning environment instrument to measure context-teaching competences for three dimensions: cognitive, affective and behavioral. So far, faculty and staff members might monitor teaching innovation environments using C.I.C. as a diagnostic tool.

Also, future studies in university classroom climate should seek to draw a larger collection of lecturers. Since the outcomes presented here referred students' perceptions of classroom teaching climate and innovation knowledge of faculty at one university, it would be advantageous to see if there were diverse teaching configurations at private university institutions. Instructors' beliefs differences based upon faculty and staff status (full/part-time positions, regular/temporary jobs), research intensity (number of publications, citations or

grant funding) and types of department/college membership should be analyzed as a promising avenue for future research. Also, effective modes of faculty knowledge change should examine more thoughtful workshops. Universities that make strategic decisions to invest in faculty development result in employee perceptions that the organization supports quality improvement. The core dimensions of powerful faculty learning environments should follow a basic assumption: faculty and staff members should be developed where they teach (departments). In this sense, strong government policies are to be required to invest in teaching excellence and long-term faculty selection planning.

Limitations

Attention should be paid in simplifying these results. There were two main limitations of this study. The first one was that the research mentioned only one climate instrument as the variable that affected student perceptions. The C.I.C. questionnaire was originally designed for individual university classroom teaching, but their scale structure and item composition had been modified. As a result, there could be some issues regarding its validity in the present form. The second one was that the research discussed classroom climate according to student demographic variables. Student characteristics only played a trivial role. This narrow focus might restrict the capacity to generalize the results across other university departments.

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