The Ideal Classroom: A Comparative Study of Education and Nursing Student Learning and Psychosocial Environmental Preferences

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Abstract

This study compared the self-reported learning styles and psychosocial environmental preferences of students in two different programs in order to assess which classroom conditions best allow for optimal learning outcomes. A sample of 101 students from education and nursing programs each reported their preferences using the visual, aural, read/write, kinesthetic (VARK) learning style inventory, and a modified version of the What is Happening in this Class? (WIHIC) classroom environment survey. A wide variety of preferred learning styles were revealed; participants also identified many dimensions of the classroom psychosocial environment as relevant. The authors discuss implications for effective higher education practices.

Introduction

Students enter the postsecondary classroom with a wide range of experiences, characteristics, and socio-cultural backgrounds. Research has shown that when educators understand and respond to student diversity, they can enhance the classroom experience (Hassanien, 2007). Effectively recognizing the knowledge and experiences that students bring to the classroom environment is one of the many challenges faced by educators. As such, differentiated instructional practices have been widely studied and applied in elementary and secondary school settings (Brown, 2004; Gardner, 1993; Chapman & King, 2005; King-Shaver & Hunter, 2003; Tomlinson, 1999).

Researchers such as Gardner (1993) and Tomlinson (1999) have focused their efforts on identifying individual student characteristics and on developing pedagogical approaches for the purpose of addressing individual learning needs. The depth of research based in early education is not matched by considerations of postsecondary education. Strengthening student learning in higher education is important in order to prepare learners for the complex demands of their future professions, thus helping them better serve the population. In higher education settings, there is an underlying expectation for students to be autonomous and responsible for their own learning. Students sometimes leave their university studies as a result of being unprepared for the demands of academic life beyond high school (Kuh, 2008). In light of this fact, it is evident that college and university educators should seek information from their
students in terms of their interests, their needs, and their dominant learning styles in order to deliver a quality education.

Although numerous researchers have uncovered psychosocial environmental trends specific to student learning preferences (Astin, Closs & Hughes, 2006; den Brok, Fishers, Rickards, & Bull, 2006; Noble et al., 2008), there has been little focus on the diversity of student preferences. Research of this nature is important because it could highlight commonalities and differences in postsecondary student learning that are independent of their current program of study. Sharing this knowledge exposes educators to a wider range of pedagogical practices to enhance psychosocial environments and improve student outcomes in higher education.

The following research questions were addressed: (1) What similarities and differences exist in pre-service education and nursing students’ learning styles? (2) Which classroom conditions do these students perceive to be ideal in their psychosocial educational environment? Student learning styles and psychosocial environment preferences will be examined through their responses to the visual, aural, read/write, kinesthetic (VARK) inventory and the What is Happening in this Class? (WIHIC) surveys. These findings could help educators create a learning environment that maximizes student diversity. In essence, results obtained from this study may provide a deeper understanding of learners’ postsecondary experiences, which could in turn guide educators in the development of pedagogical practices that are conducive to meeting their students’ diverse educational needs.

Challenges Faced by Students and Educators

For the most part, students are responsible for their academic learning. Some students are more aware of their learning abilities and value an opportunity to articulate the ways they best learn (Bradshaw, 2007; Melrose, 2004). Increased awareness about preferred learning needs can enable faculty to develop strategies to enhance student performance. In light of this awareness, educators can address issues that impact cognitive processes. In particular, once educators are familiar with course objectives, difficulties sometimes remain in the “how to” deliver effective material in class.

Educators are also challenged to recognize the psychosocial and cultural diversity among students to better create equitable postsecondary experiences (den Brok et al., 2006; Fraser, 1998; Melrose, 2004). Faculty is responsible for tailoring the classroom environment to optimize student outcomes by tailoring the classroom. Therefore, considering the congruence between faculty’s style and learner’s preferences
is a key element in effective teaching (Bradshaw, 2007). Educational experiences emerging from identified preferred learning styles should be developed and utilized in classrooms.

**Learning Styles Inventories: An Assessment to Guide Content Delivery**

Every individual has distinct personal qualities that characterize his or her identity. These individual differences are manifested through diverse prevailing preferences about how to receive and communicate information. Also known as learning styles, the exploration of cognitive structures used in knowledge acquisition can guide educators in adapting pedagogical practices that adhere to the needs of their students. Many researchers continue to focus on the importance of determining student learning styles to adapt instruction, even in postsecondary education (Amerson, 2006; Carrier, 2009; Fountain & Alfred, 2009; Howles & Jeong, 2009). Howles and Jeong (2009) stipulate that it is of primary importance to discover the ways in which students learn best. Similarly, Amerson (2006) notes that student mastery is enhanced when the learning needs of students are met.

A variety of instruments have been developed for assessing the learning style of students. In higher education, learning style inventories are sometimes used at the outset of a program. These inventories could serve as a diagnostic assessment to shape course learning activities or as a metacognitive tool to help students in determining their own learning strengths and areas of growth. The VARK inventory, which was selected for the current study, was developed by Fleming and Mills (1992). In conjunction with a classroom environment assessment, the VARK contributes to generating student learning profiles.

**Molding the Psychosocial Learning Environment**

The classroom environment involves an interaction of aspects of learners’ psychological and social behaviors. Research in recent years has confirmed that the value of the classroom culture has a considerable influence on the quality of student learning experiences (den Brok et al., 2006; Fraser, 1998). Den Brok and colleagues (2006) maintain that student perceptions of an ideal classroom significantly affect their performance outcomes. The fact that the psychosocial environment plays a key role in valuable knowledge representation underlines the fact that a learning style inventory in isolation is insufficient to assess learner needs; rather, educators should also examine the psychosocial environment.

In the current study, the WIHIC (Aldridge & Fraser, 2000) inventory was utilized. The instrument was chosen for numerous reasons. First, the survey focuses on learning environment dimensions between educators and students. Second, the WIHIC
has cross cultural validity (Sadaquat, Rohindra & Coll, 2008). Third, the instrument reflects cognitive and emotional student outcomes. As a final point, the WIHIC requires little time to complete and questions are clear and concise. The WIHIC has been validated through a number of research studies (Dorman, 1999; Dorman, 2008; Sadaquat et al., 2008; Zandvliet & Straker, 2001).

Research Design

The present study consisted of an empirical investigation of the dominant undergraduate student learning styles in education and nursing as well as of their relation to the participants’ perceptions of the constitution of an ideal educational environment. Two quantitative questionnaires, which are described in detail below, were utilized to examine student learning preferences. The main objective was to verify how educators can create an ideal postsecondary learning environment using the dominant learning styles and the classroom environment preferences of their students as a basis.

Participants

Participants included education and nursing students who had a minimum of two years of university education experience. The authors of the current study assumed that while having been exposed to university education for a significant interval of time would have no bearing on an individual’s dominant learning style, participants would nonetheless have had the opportunity to develop a founded opinion on their learning environment preferences if they had been at university for a minimum of two years. Nine students did not complete both questionnaires. Of the remaining 101 participants, 80 were education students and 21 were nursing students. Participants were predominantly female in both disciplines, a fact reflected in student enrolment demographics for the academic term during which the current study was conducted. Although a more diverse group of participants may have yielded more comprehensive results, limited male enrolment in both education and nursing programs made this unfeasible.

Ethical Considerations

Ethical approval to conduct the study was obtained from the Research and Ethics Board of the institution. All participants were informed of the purpose of the study and given the opportunity to ask questions regarding their rights and contribution. Student acceptance or refusal to participate had no repercussions on their grades or on their academic standing. Willing participants then provided written consent and completed
the questionnaires. Anonymity was ensured by assigning arbitrary codes to participants’ data and not recording names or other identifying information. Confidentiality was also maintained by storing informed consent forms separate from the questionnaires. All materials were kept in a secure location.

Data Collection and Analysis

To recruit participants, the Placement Coordinators in both the education and nursing programs were asked to introduce the study during a classroom session. These individuals had no direct responsibility for the summative evaluation of students. Participants were asked to voluntarily complete two questionnaires on site, which required approximately 20 minutes of their time. French and English versions of the two questionnaires were made available. Unidentified questionnaires and consent forms were then submitted in sealed envelopes and placed in two different boxes located in the classroom. Systat 13 was utilized to manage and analyze all data.

Instrumentation: Visual, Aural, Read/Write, Kinesthetic

The first questionnaire administered was the VARK, developed by Fleming and Mills (1992). Permission to use the instrument was obtained directly from the primary author. The purpose of the VARK is to measure participants’ endorsement of their dominant learning style. The questionnaire contains 16 multiple-choice questions, and has an expectation of multimodality, which allows for the selection of more than one response. Questions captured hypothetical scenarios of everyday activities, where participants selected how they would process information in that particular situation. The reliability and validity of the VARK has been widely reported in the literature (Kalkan, 2008; Rogers, 2009). Table 1 outlines topics reflecting daily activities found in the VARK questionnaire.

The VARK questionnaire measured participants’ endorsement of their preferred learning practices. Results indicated student reactions to situations encountered in daily life, namely the degree to which they supported visual, aural, reading/writing, and/or kinesthetic learning styles. Participants received a score for each modality by summing the number of items they endorsed based on their responses. Their dominant learning style was determined to be the one with the highest total, and was subsequently coded accordingly. Where a difference of 1 point between learning style scores was reported, the participant was then determined to have the two highest scoring modalities as his or her dominant learning style.
Table 1

Topics in VARK Questionnaire

<table>
<thead>
<tr>
<th>Everyday Activities</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>Seeks preferred way to provide directions to an airport, receive feedback on a test, prepare a speech for a conference</td>
</tr>
<tr>
<td>Food</td>
<td>Seeks preferred ways to choose an item from a restaurant menu, choose a recipe to serve to company</td>
</tr>
<tr>
<td>Group Dynamics</td>
<td>Seeks preferred ways to teach a group of tourists</td>
</tr>
<tr>
<td>Purchases</td>
<td>Seeks preferred ways to purchase digital equipment, a non-fictional book</td>
</tr>
<tr>
<td>Medical Care</td>
<td>Seeks preferred ways to receive medical attention</td>
</tr>
<tr>
<td>Learning</td>
<td>Seeks preferred ways in learning a new skill, game, word</td>
</tr>
<tr>
<td>Internet</td>
<td>Seeks preferred website designs and functions</td>
</tr>
</tbody>
</table>

The psychosocial learning environment was assessed using an adapted version of the WIHIC instrument developed by Fraser and McRobbie (1995). Authors of the WIHIC have given permission to adapt the instrument for the current study. The WIHIC uses a 56-item set of Likert scales. These include seven categories, namely: Student Cohesiveness, Teacher Support, Involvement, Task Orientation, Investigation, Cooperation, and Equity. Participants were asked to rate their preferred frequency of occurrence of practices that transpire in the classroom on a scale of 1 to 5. While the original version of the WIHIC calls for participants to compare their current classroom environment to their ideal classroom environment, this comparative element was removed for the purposes of this study. Consequently, responses reflected perceptions of an ideal classroom exclusively, rather than a judgment on the quality of students’ current learning environment. The WIHIC was standardized amongst high-school students and found to be highly reliable and valid cross-culturally (Dorman, 2003). Table 2 provides a textual description of categories found on the WIHIC questionnaire.
Table 2

*Conceptualization of the WIHIC Categories*

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Cohesiveness</td>
<td>Refers to interpersonal relationships within the classroom</td>
</tr>
<tr>
<td>Teacher Support</td>
<td>Refers to the instructor’s interest in student success</td>
</tr>
<tr>
<td>Involvement</td>
<td>Refers to opportunities to share ideas with the classroom community</td>
</tr>
<tr>
<td>Task Orientation</td>
<td>Refers to the student’s role and responsibilities in terms of the course and of the coursework</td>
</tr>
<tr>
<td>Investigation</td>
<td>Refers to the opportunity to practically apply what has been learned in the classroom</td>
</tr>
<tr>
<td>Cooperation</td>
<td>Refers to group work and cooperative learning in the classroom</td>
</tr>
<tr>
<td>Equity</td>
<td>Refers to the equitable treatment of students from the course instructor</td>
</tr>
</tbody>
</table>

**Authors’ Compilation**

**Results**

The findings of the current study reflect the reported perspectives of education and nursing students. To assess student dominant learning styles, researchers administered the VARK questionnaire to measure the degree to which participants endorsed visual, aural, read/write and kinesthetic learning modalities. The WIHIC was used to identify patterns of preference in an “ideal” classroom. The authors of the current study present these results separately.

The VARK questionnaire was scored by calculating the total number of items endorsed from each modality. The dominant learning style of each participant was identified as the modality with the highest total endorsement. In the event that highest scoring modalities had the same total or a difference of 1 point, participants were placed in a multimodal category. Table 3 (below) represents the prevailing modalities of these participants.
Table 3

Endorsement of VARK Categories by Participants

<table>
<thead>
<tr>
<th>Modality</th>
<th>Number of participants endorsing category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual</td>
<td>16</td>
</tr>
<tr>
<td>Audio</td>
<td>19</td>
</tr>
<tr>
<td>Read/Write</td>
<td>15</td>
</tr>
<tr>
<td>Kinesthetic</td>
<td>10</td>
</tr>
<tr>
<td>Multimodal</td>
<td>41</td>
</tr>
</tbody>
</table>

The multimodal category was far and away the most frequently observed at forty-one percent of the total. There was no significant difference in the distribution of scores across the two classes, $X^2 = 9.03$, df = 4, $p = .06$. The near critical value is essentially an artifact of taking the nursing class (n=21) across too large a number of categories. In order to examine the ideal classroom from students’ perspectives, it was important to study psychosocial influences that exist within the learning environment. As such, the WIHIC questionnaire was utilized in light of the fact that it examines the interactions of various psychosocial variables between students and faculty. Table 4 (below) presents categories from highest average scores to lowest.

Table 4

Ranking of WIHIC Average Scores

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Mean endorsement of subscale questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task Orientation</td>
<td>4.32</td>
</tr>
<tr>
<td>Cooperation</td>
<td>4.12</td>
</tr>
<tr>
<td>Cohesiveness</td>
<td>4.06</td>
</tr>
<tr>
<td>Equity</td>
<td>4.03</td>
</tr>
<tr>
<td>Support</td>
<td>3.61</td>
</tr>
<tr>
<td>Investigation</td>
<td>3.35</td>
</tr>
<tr>
<td>Involvement</td>
<td>3.34</td>
</tr>
</tbody>
</table>
Using Wilk’s lambda, it was found that the distribution of scores differed across the two classes, $F = 5.13$, $df = 7,93$, $p < .001$. However, this difference is almost completely explained by education students systematically giving higher endorsements to all categories. When this mean difference between classes is removed, there is no difference in pattern of endorsement across categories, $F < 1$. Although the table highlights the fact that Task Orientation receives the highest average ranking, participant scores were distributed so that each of all seven categories were endorsed as the most important by at least some participants. Participants rated categories quite similarly such that sixty-seven percent of participants differed by less than two points from their highest endorsement to their lowest.

Discussion

All information in the current study was gathered during the first semester of the academic term. The results are discussed with reference to recent and past literature about preferred learning styles and ideal psychosocial classroom environments and responses in higher education. Implications for postsecondary education and research are also addressed in terms of learning-teaching processes and the creation of an ideal learning environment.

Implications: Learning Styles Research

Results from the VARK questionnaire revealed a diversity of preferred styles in both the nursing and education programs. That the differences between these programs were marginal suggests that learning preferences are independent of the program of study. Such findings were similar to those of past research highlighting various learning style preferences. Astin et al. (2006) investigated Clinical Nurse Specialists’ learning styles and found that the majority displayed a preference for more than one way of learning. Numerous authors who have administered similar learning style inventories in higher education have also discovered that groups do not report homogenous dominant modalities (Hawk & Shaw, 2007; Henson & Hwang, 2002; Riding & Rayner, 1998).

Another interesting finding was that, while the visual (15%) and auditory (18%) categories were the single categories most often endorsed, there was still student representation of every learning style. It is important to reflect that the multimodal category does not always reflect a combination including the visual or auditory categories. If one considers people to have a revealed preference for visual and auditory learning styles only if they endorse at least one of the categories by two points more than either the read/write or kinesthetic categories, a full sixty-five percent (65%) of students have shown no real preference for traditional visual and auditory presentations.
Generalized across disciplines, this finding would suggest that all learning styles should be represented in classrooms. All classrooms should be expected to hold a diverse student population and there is no single type of presentation that could correspond to the number of learning styles that should be expected to be present. The implication for educators is that teaching and learning activities should address all four VARK categories. Researchers have elaborated numerous strategies that support learning styles. For example, Bradshaw (2007) contends that in-class teaching strategies that allow students to attend and listen to lectures, use tape recorders, and discuss visual aids with other students best support aural learning preferences. He also discusses how students who prefer read/write as a learning style benefit from utilizing handouts and textbooks, and writing lists and definitions in class. Therefore, increasing awareness of different pedagogical techniques that address diverse learning style can help educators understand common ways that students generally process and retain information. Integrating kinesthetic approaches to material should further improve the quality of many students’ academic experiences.

Implications: Psychosocial Environmental Preferences in Higher Education

In this study, education students ranked all categories of the WIHIC questionnaire higher than those of the nursing students. This was an unanticipated finding; it may be that education students closely assess the classroom environment since it will represent their future workplace. In contrast, nursing students’ workplace is more likely to be outside the classroom, which may cause them to place less importance on the structure of its psychosocial construct.

Apart from the overall enthusiasm of the education students, the pattern of revealed preferences followed the same pattern. On average, participants in both groups selected Task Orientation within the classroom as a priority. This finding could suggest that students feel more comfortable in a setting where they are aware of the requirements for successful course completion, and that they feel confident in their abilities to meet these requirements. The fact that students in both disciplines dominantly endorsed Task Orientation could also suggest that they are responding to something that they perceive are lacking in their environment. Subsequent research would be warranted in order to determine whether this trend is due to a preference for Task Orientation over other delivery methods. Further research could also potentially clarify the reason that students in this study appeared to be preoccupied with academic results and whether this trend is evident in disciplines other than education and nursing. It is reasonable to infer, however, that success or failure in a course could be a
priority because of the financial implications of starting over following an unsuccessful attempt at a course, not to mention the time invested as well as the sense of personal accomplishment and increase in self-esteem that follows successful endeavors (Henderson, 2002).

The comparatively lower endorsements given to Investigation and Involvement also provoke two possibilities for future research. First, these may have been relatively less pertinent to the participants because of the hands-on nature of the professional training they were receiving. Although participants were asked to imagine their ideal classrooms, they may be reacting to their present circumstances. Second, it may be that Investigation and Involvement are so poorly represented in their current university experience that these categories simply do not form part of the image of an imagined classroom. Additional data will be needed.

The Task Orientation category was the most highly endorsed on average. However, there were participants advocating each of the elements of the psychosocial environment. There was also a limited range of scores such that many participants advocated more than one category, and the differences between their highest endorsement and the scores given other elements were quite small. Sixty seven percent had a range of scores less than 2. Similar to the finding that all of the VARK learning styles were represented, this finding suggests that the creation of a positive environment for a diverse population will involve all of the psychosocial components tapped by the WIHIC questionnaire. In previous research there is evidence that undergraduate learners value interactive activity with course content and one another (Davis, 1993; Hassanien, 2007; Ramsden, 1992). On the basis of the WIHIC results we would expect that there is no single environment that is ideal for the entire population – class and program design needs to address this variety.

Implications: Postsecondary Education

The findings from this study also raise questions about the extent of the responsibility of faculty in facilitating student learning. Instructors in a college or university setting practice academic freedom, which makes the use of specific educational practices for faculty optional. In addition, restricting academic freedom could compromise the integrity of research, which could also potentially stifle the creativity of instructors and affect the quality of course content. This issue is further complicated by the fact that research interests and methodologies are varied and result in content and delivery methods that are potentially wide-ranging in accordance to the research focus or nature of the professional experiences of the course facilitator. The classroom environment is, however, a pivotal influence of student educational experiences (Fraser, 1998). In a university setting, this educational experience is often followed by entry into the workforce. In light of the fact that recognizing student
strengths and abilities has proven to enhance student performance (den Brok et al, 2006; Hawk & Shaw, 2007), it is evident that maximizing postsecondary learning experiences of students has notable societal implications. The dilemma remains in the fact that the individual and whole-group classroom dynamics differ from year to year.

One approach would be to coordinate across faculty members to ensure that learning experiences are systematically varied across the curriculum. This permits the variety of faculty strengths to interact with the strengths and abilities of the students.

Limitations

Potential limitations of this work include sample design and small sample sizes. The authors also acknowledge that the findings of the study reflect the preferences of a sample of education and nursing students at a particular university and may not reflect those of students in other disciplines or at other universities.

Conclusion

As key players in the application of knowledge gained from a higher education institution, students can provide valuable information to faculty. The current study has highlighted the importance of creating a chance for postsecondary students to advocate for their learning environment. Fueled with knowledge of student learning preferences and desires, educators are better suited to adapt academic content that complements student diversity in the classroom. Once an effective teaching technique has been utilized, it is vital to recognize that its success may vary from group to group, even from time to time, as learning styles can shift as students develop their less dominant styles, and further advance their preferred styles. Tools such as the VARK and the WIHIC questionnaires may be helpful to faculty making decisions about how to provide opportunities for students to participate in active learning. It is advantageous for educators to locate and utilize tools that benefit both students and faculty members in order to design a flexible learning atmosphere that captures students’ learning preferences.

Although the literature identifies approaches to promote the diagnostic assessment of the preferred learning needs and ideal classroom environments, there is limited evidence to evaluate how these approaches impact postsecondary students. Some unanswered questions remain that warrant further research: How can educators develop an ideal classroom assessment despite individual learner differences and the common subjectivity of course content development in higher education? Why do students in the current study seem more preoccupied with Task Orientation than other aspects of the psychosocial classroom environment? Finally, how do higher education instructors maximize student learning while ensuring that course completion standards
are sufficiently elevated to benefit the future work settings of graduates? Finding answers to such questions will promote better higher education practices.

References


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