

ORIGINAL RESEARCH

BSN graduates' preferred learning styles: implications for student-centered learning

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ABSTRACT

Purpose: The purpose of the study was to determine the learning styles that nursing graduates employed during the course of their BSN programme.

Methods: Within a sequential, explanatory mixed methods design a survey was administered to determine graduates' learning styles. From a population of 384 graduates, a sample of 200 agreed to participate. Data were collected using the Grasha-Riechmann Learning Styles Scales. MS Excel was used to enter the learning styles scores; descriptive statistics were computed using the statistical package SPSS Version 16.0.

Results: The most dominant and preferred learning styles are Competitive learning style ($\bar{x} = 3.98$; SD = 0.52) and Avoidant learning style ($\bar{x} = 3.88$; SD = 0.68). Both are teacher-centered learning styles that do not promote learner independence, confidence, critical thinking and active learning. The least preferred is the Independent Learning Style ($\bar{x} = 2.84$; SD = 0.80). Implications for student-centered learning are inferred from the results.

Conclusions: Graduates' preference for the Competitive and Avoidant learning styles reflects an alignment with a teacher-centered paradigm and lack of diversity in use of learning styles during their study. The preferred learning styles detract from student-centered learning and point to an approach to teaching that integrates Socratic and facilitative methods to promote diversity of learning styles. As the educational paradigm shifts towards student-centered learning there is mounting pressure on educators to have better understanding on students' preferred learning styles and adopt variety of pedagogical strategies to optimize ways students learn.

Key Words: BSN graduates, Grasha-Riechmann learning styles scale, Learning style, Student-centered learning, Teaching style

1. INTRODUCTION AND BACKGROUND

Student-centered learning has emerged as a valued alternative to traditional, didactic ways of knowledge acquisition during which the teacher relinquishes the role as primary transmitter of information. Student-centered learning focuses on the "what" and "how" of student learning rather than on the

"what" and "how" of teaching.^[1] Knowing students' styles and approaches to learning are thus essential for creating effective student-centered learning environments.

Several authors posit that the ability to characterize student learning styles may enrich the educational experience and provide valuable insight into students' academic perfor-

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mance.^[2-4] This is because the manner in which individual students choose or are inclined to approach their learning impacts on their academic progress and ultimately, retention in the profession.^[5] Student learning styles are considered by many as one of the key success factors in higher education.^[4] As a consequence, knowledge of learning styles is receiving greater attention in universities in their quest to meet human capital needs and to produce graduates who are workplace ready.^[6] The reason for this attention is not to simplistically match lecturers' teaching styles to the students' learning styles but to cultivate learning environments that take into account educational, economic and technological advances. Diversity in the composition of student bodies, student mobility and transnational education trends are additional reasons that underpin the importance of understanding learning styles among university students.^[4,7]

Suggestions over the past 10 years that students learn best when the educator's teaching style matches their style of learning^[8-10] are increasingly being contested by experts who favour the adoption of a variety of methods by educators.^[11] The corollary to matched styles can also be undesirable in that any inclination that an educator might have towards teacher-centeredness would encourage passivity and dependence among students. Emulating teacher behaviour and style is well described in social learning theory. A longitudinal study by Shein and Chiou^[12] found that undergraduate students who identify teachers as their role models are inclined to adopt a learning style that aligns closely with the mode of teaching. As the educational paradigm shifts towards student-centered learning there is mounting pressure on educators to have a better understanding of their students' preferred learning styles and to adopt a variety of pedagogical strategies to optimize the ways they learn. The eventual endpoint of knowing how to learn and what to learn is graduate success and impact in the workplace.

Knowledge of learning styles can thus be of use to both educators and students. Learning styles research abound in the literature, however, little is known about their influence on learning environments and learning paradigms. Thus the aim of this study was to determine the preferred learning styles from the perspective of Bachelor of Science in Nursing (BSN) graduates in Malawi. Extrapolating from graduates' learning styles and nurse educators' teaching styles identified in a parallel study, we discuss the implications for a student-centered learning paradigm.

Various learning styles typologies and models are described in the literature. After considering the merits of several models the Grasha-Riechmann Student Learning Styles Scale (GRSLSS)^[13] was deemed suitable to meet the study aim.

Developed in the early 1970s the GRSLSS is suitable for use on both college students and graduates to determine their learning styles and the interaction between graduates/students and their teacher, their peers and the learning material. The GRSLSS also has a corresponding teaching styles scale, which can be used to report on preferred teacher classroom activities and interactions. Since the Grasha Teaching Styles inventory was used to determine the predominant teaching styles of nurse educators in the same study context it was logical to use a consonant model of learning styles.

2. METHODS

2.1 Research design

A survey, embedded in a sequential, explanatory mixed methods design was used to collect data, retrospectively, from BSN graduates. In this type of mixed method design quantitative research was conducted first, followed by qualitative methods in order to enhance the quantitative findings. Only the quantitative component is reported in this paper.

2.1.1 Participant recruitment

The target population comprised BSN graduates from the Kamuzu College of Nursing (KCN) at the University of Malawi who had graduated within five years prior to 2014 (N = 384). Criteria for inclusion required graduates to have had between one to five years of clinical experience after graduation and to be in clinical practice at the time of the survey. The survey and information letters, inviting participation in the study, were distributed to 235 graduates identified on the employee list of 15 public and private hospitals who gave permission. A total of 200 (85.1%) completed the survey and constituted the final sample. Surveys were returned to the researcher in self-addressed envelopes. Completion of the survey items was accepted as consent to participate in the study. Ethical clearance was obtained from formally constituted ethics committees of the University of the Witwatersrand and the University of Malawi.

2.1.2 Data collection tool

A self-report scale, the Grasha-Riechmann Student Learning Style Scale was used to collect learning styles data. It comprises 60 items that assess the following learning styles on a 5-point Likert scale: Independent, Avoidant, Collaborative, Dependent, Competitive and Participant.^[14] The rating scale was actualized as follows: 1 = strongly disagree, 2 = moderately disagree, 3 = undecided, 4 = moderately agree and 5 = strongly agree. The test norms of each learning style ranges from low, moderate and high scores (see Table 1).

Table 1. Grasha-Riechmann learning style scales scores^[14]

Style	Low	Moderate	High
Independent	1.0-2.7	2.8-3.8	3.9-5.0
Avoidant	1.0-1.8	1.9-3.1	3.2-5.0
Collaborative	1.0-2.0	2.8-3.4	3.5-5.0
Dependent	1.0-2.9	3.0-4.0	4.1-5.0
Competitive	1.0-1.7	1.8-2.8	2.9-5.0
Participant	1.0-3.0	3.1-4.1	4.2-5.0

Reliability coefficients reported by Riechmann and Grasha^[13] for each learning style in the GRSLS ranged from 0.81 to 0.89 as follows: Independent (0.84), Participant (0.82), Collaborative (0.81), Dependent (0.73), Competitive (0.81), Participant (0.74). In a later publication, Ferrell^[15] reported an overall test-retest reliability coefficient of 0.79-0.83.

2.2 Data analysis

The learning styles scales were quantified using MS Excel programme. Self-reported learning styles scores were entered on the statistical package SPSS (version 16.0); descriptive statistics were run and frequency tables with means and standard deviation were created. High scores in any learning style indicate that the learning style is preferred during learn-

ing encounters; low scores indicate minimal preference for a particular learning style.

3. RESULTS

The main characteristics of the sample were as follows: 85% (n = 170) were female. The age range for most participants (n = 74; 37%) was between 26 and 30 years, followed by 25% (n = 50) between the ages of 31 and 35 years. Approximately half (n = 101; 50.5%) had between three to five years’ work experience after graduating.

3.1 Independent learning style

The responses showed variation in how participants used this learning style during the BSN programme. A high mean score was obtained on the two statements “when I do not understand something, I first try to figure it out myself” and “I like classes where I can work at my own pace” (\bar{x} = 4.35; SD = 0.56). The lowest mean scores emanated from two statements: “I learn a lot of the content in my classes on my own” and “My ideas about content often are good as those in the text book” (\bar{x} = 2.66; SD = 0.54 and \bar{x} = 2.41; SD = 0.35 respectively). The majority (54.5%; n = 109) yielded scores that ranged between 2.8 and 3.8 indicating moderate preference for the independent learning style. The aggregate mean score was 2.84 (SD = 0.80) as can be seen in Table 2.

Table 2. Distribution of Independent learning style scores (n = 200)

SR.	Statement	Mean	SD
1	I prefer to work by myself on assignments in my courses	3.95	0.54
7	My ideas about the content often are good as those in the textbook	2.41	0.35
13	I study what is important to me and not always what the instructor says is important	2.81	0.56
19	I learn a lot of the content in my classes on my own	2.66	0.54
25	I feel very confident about my ability to learn on my own	3.05	0.58
32	I like to develop my own ideas about course content	4.02	1.11
39	I have my own ideas about how classes should be run	3.6	1.17
49	I like classes where I can work at my own pace	4.35	0.56
51	I like to teach big numbers of classes	2.98	1.52
57	When I don’t understand something, I first try to figure it out for myself	4.05	1.1
Aggregate mean score and SD		2.84	0.80

3.2 Avoidant learning style

The majority of the participants (65.5%; n = 131) reported having attributes in line with the Avoidant learning style with scores ranging between 3.2 and 5.0. Only 17.65% (n = 30) reported moderate preference for this learning style with scores ranging between 1.9 and 3.1. The statements “I often daydream during class” (\bar{x} = 4.45; SD = 1.03) and “Paying attention during class sessions is difficult for me” (\bar{x} = 4.43; SD = 1.51) enjoyed high mean scores. Scoring low

was the statement: “I have given up trying to learn anything from going to class” (\bar{x} = 2.97; SD = 1.31). The mean was 3.88 (SD = 0.68), reflecting high preference for the Avoidant learning style (see Table 3).

3.3 Collaborative learning style

The statement “I enjoy discussing my ideas about the content with other students” yielded a high mean score (\bar{x} = 4.55; SD = 0.56), while the statements “Learning the material was

a cooperative effort between students and teachers”, and “I like to study for tests with other students” obtained the lowest mean scores respectively ($\bar{x} = 2.55$; $SD = 0.58$ and $\bar{x} = 2.49$; $SD = 0.36$) indicating that participants did not favour

collaboration during their studies. The majority (86.47%; $n = 147$) scored within the range of 2.8-3.4 ($\bar{x} = 3.03$; $SD = 0.52$), reflecting a moderate preference for this learning style (see Table 4).

Table 3. Distribution of Avoidant learning style scores ($n = 200$)

SR.	Statement	Mean	SD
2	I often daydream during class	4.45	1.03
8	Classroom activities are usually boring	3.86	1.30
14	I very seldom am excited about material covered in a course	4.04	1.09
20	I don't want to attend most of my classes	3.90	1.44
26	Paying attention during class sessions is difficult for me to do	4.34	1.51
32	I have given up trying to learn anything from going to class	2.97	1.31
38	I study just hard enough to get by	3.47	1.45
44	I typically cram for exams	3.64	1.17
50	I would prefer that teachers ignore me in class	4.25	0.81
56	During class sessions, I tend to socialize with people sitting next to me	3.93	0.95
Aggregate mean score and SD		3.88	0.68

Table 4. Distribution of Collaborative learning style scores ($n = 200$)

SR.	Statement	Mean	SD
3	Working with other students on class activities is something I enjoy doing	3.23	0.59
9	I enjoy discussing my ideas about the content with other students	4.55	0.56
15	I enjoy hearing what other students think about issues raised in class	3.55	0.61
21	Students should be encouraged to share more of their ideas with each other	2.81	0.35
27	I like to study for tests with other students	2.55	0.58
33	Class sessions make me feel like part of a team where people help each other learn	2.84	0.55
39	An important part of taking courses is learning to get along with other people	2.90	0.42
45	Learning the material was a cooperative effort between students and teachers	2.49	0.36
51	I am willing to help other students out when they do not understand something	2.89	0.37
57	I enjoy participating in small group activities during class	2.55	0.56
Aggregate mean score and SD		3.03	0.52

3.4 Dependent learning style

More than a third (35.29%; $n = 60$) of the participants' scores ranged between 4.1 and 5.0 indicating that there are attributes of dependence and a high preference for this learning style; 61.76% ($n = 105$) though, obtained scores between 3.0 and 4.0 ($\bar{x} = 3.74$; $SD = 0.68$) reflecting a moderate preference for the Dependent learning style. The statement “Students should be more closely supervised by teachers on course projects” yielded a high mean score ($\bar{x} = 4.64$; $SD = 0.27$) while the statement “I complete assignments exactly the way my teacher tell me to do them” scored low ($\bar{x} = 2.40$; $SD = 0.55$) as reflected in Table 5.

3.5 Competitive learning style

Graduates' scores varied indicating competing attributes among the participants with varying mean scores between statements. The statements with the highest and lowest mean scores are: “I want my teachers to give me more recognition

for the good work I do” ($\bar{x} = 4.3$; $SD = 0.81$) and “It is necessary to compete with other students to get a good grade” ($\bar{x} = 2.40$; $SD = 0.27$). The vast majority (77.6%; $n = 125$) scored high within the range of 2.9-5.0 ($\bar{x} = 3.93$; $SD = 0.52$) indicating that graduates preferred this learning style during their BSN studies. Table 6 shows the statements and their scores.

3.6 Participant learning style

Although almost half of the participants (49.41%; $n = 84$) obtained high scores ranging between 4.2 and 5.0 they showed an overall moderate preference for this style of learning. Statements that are noteworthy are: “Classroom activities are interesting” ($\bar{x} = 3.25$; $SD = 1.48$), receiving the highest score and “In my classes, I often sit toward the front of the room” ($\bar{x} = 2.3$; $SD = 1.7$) the lowest, which corresponds with an avoidant style. The overall mean score is 3.76 and $SD = 0.94$ (see Table 7).

Table 5. Distribution of Dependent learning style scores (n = 200)

SR.	Statement	Mean	SD
4	I like it whenever teachers clearly state what is required and expected	4.30	0.69
10	I rely on my teachers to tell me what is important for me to learn	3.64	0.42
16	I only do what I am absolutely required to do in my course	3.23	1.32
22	I complete assignments exactly the way my teacher tell me to do them	2.40	0.55
28	I do not like making choices about what to study or how to do assignments	3.66	0.54
34	Students should be more closely supervised by teachers on course projects	4.64	0.27
40	My notes contain almost everything the teacher said in class	4.32	0.81
46	I prefer that class sessions that are highly organized	3.46	1.17
52	Students should be told exactly what material is to be covered on exams	3.55	0.58
58	I like it when teachers are well organized for a session	4.30	0.55
Aggregate mean score and SD		3.74	0.68

Table 6. Distribution of Competitive learning style scores (n = 200)

SR.	Statement	Mean	SD
5	To do well, it is necessary to compete with other students for the teacher’s attention	2.41	0.35
11	It is necessary to compete with other students to get a good grade	2.40	0.27
17	In class, I must compete with other student to get my ideas across	3.05	0.58
23	Students have to be aggressive to do well in courses	2.64	0.42
29	I like to solve problems or answer questions before anybody else can	4.22	0.54
35	To get ahead in class, it is necessary to step on the toes of others students.	3.95	0.61
41	Being one of the best students in my classes is very important to me	4.23	0.59
47	To stand out in my classes, I complete assignments better than other students	3.95	0.61
53	I like to know how well other students are doing on exams and course assignments	4.22	0.54
59	I want my teachers to give me more recognition for the good work I do	4.32	0.81
Aggregate mean score and SD		3.93	0.54

Table 7. Distribution of participant learning styles scores (n = 200)

SR.	Statement	Mean	SD
6	I do whatever is asked of me to learn the content in my class	2.84	0.55
12	Class sessions typically are worth attending	2.81	0.56
18	I get more out of going to class than staying at home	3.02	1.36
24	It is my responsibility to get as much as I can out of a course	2.98	1.52
30	Classroom activities are interesting	3.25	1.48
36	I try to participate as much as I can in all aspects of a course	2.64	0.42
42	I do all course assignments well whether or not I think they are interesting	2.41	0.35
48	I typically complete course assignments better than other students	2.4	0.27
54	I complete required assignments as well as those that are optional	3.02	1.36
60	In my classes, I often sit toward the front of the room	2.3	1.7
Aggregate mean scores and SD		3.76	0.94

4. DISCUSSION

The most preferred learning styles of BSN graduates were the Competitive (77.6%) and the Avoidant learning styles (73.5%); the least preferred was the Independent learning style. The preferred learning styles correspond to a teacher-centered paradigm where teachers have significant power as an authority figure and learners rely heavily on them for their learning.^[14, 16] High preference for the Competitive learning

style is, in part, similar to a study by Amir et al.^[17] who found that the Collaborative and Competitive learning styles were dominant among university students. They also found that educators plan learning activities that set high expectations for their students’ performance and that elicit the use of diverse learning styles. Findings on gender differences in learning style are variable and inconclusive.^[18, 19] Within the Competitive learning style the scores show that participants

tend to compete more with the teacher than with fellow students to get recognition and obtain good grades. This is in line with the finding that the expert teaching style dominates the KCN BSN programme where high value is placed on the teacher's knowledge and expertise.^[19] Students thus derive great benefit from the expert teacher in order to be the best in the class. The biggest risk in teacher-student interaction associated with this style is that the teacher's expertise may be overwhelming and intimidating^[14] causing some students to retreat into their shells, inadvertently evoking avoidance in the learning environment.

Thus the predominance of the Avoidant learning style in this study may be considered as a function of both a teacher-centered approach (Expert teaching style) and student choice. Avoidant students are generally disinterested and lack enthusiasm for the learning material being presented. In this study graduates reported high levels of inattentiveness (4.34) and the tendency to daydream in class (4.45). A preference for the Avoidant learning style may also counter students' inclination to participate and collaborate with fellow students. A study of pharmacy students' learning styles showed that increased use of the Avoidant learning style led to a decrease in using the Participant learning style in a problem-based learning curriculum.^[20] However, these researchers do concede that this finding might have been due to the difficulties in adapting to changes in the learning method. The finding of Novak et al.^[20] partly concurs with the finding of this study where graduates scored low on cooperative learning efforts (2.49) and participation in small group learning (2.55) while simultaneously scoring high on avoidance variables. One of the major outcomes of this learning style is that students tend to perform poorly and receive negative feedback about their skills and knowledge in practice settings.

A low to moderate preference for the Independent learning style among graduates (2.84) compounds the learning difficulties and performance issues experienced at the college. A low preference for independent learning approaches negates student-centered learning – students seek out and depend on an authority figure who can give them clear and unambiguous learning instructions.^[21] Learners with a low inclination towards independent learning fail to develop self-directed learning skills and self-confidence due to poor cognitive engagement with the subject matter. In a learning environment that lacks facilitation and learner-centered approaches the development of these skills, including students' self-esteem is suppressed further. This statement is supported by the results of a teaching styles study in which KCN nurse educators were found to have a low preference for the Facilitator teaching style,^[22] underscoring the low level of independent learning reported by BSN graduates.

4.1 Implications for student-centered learning

The preferred learning styles identified have important implications for student-centered learning. These are explicated in relation to the dominant teaching styles of nurse educators. In this study context, nurse educators' teaching practices include the routine use of lectures and the infrequent use of discussions and group work; facilitative methods that stimulate thinking, inquiry and problem-solving were the least practiced.^[22]

Despite learners' preference for certain learning styles, how educators structure their teaching can be modified to stimulate multiple ways of learning - modification of the educators' approaches also promotes active learning of subject content.^[23] According to Felder^[11] teaching methods should be varied to stimulate students' interest, activity and engagement in what they are learning. This serves as a catalyst for creating student-centered learning environments where the educator, in a leadership role, employs a variety of teacher-centered approaches to meet students' learning needs. If educator practices are not aligned to students' needs, students may lose interest and focus, perform poorly in their assessments and even dropout or change courses.^[11, 16]

Student-centered methods have repeatedly been shown to be superior to traditional, didactic approaches. Generally, four strategies are advocated to enhance student-centered learning: making students more active in acquiring knowledge, making students more aware of what they are doing and why they doing it, making students more interactive, and making what students learn more transferrable. In contexts where didactic methods prevail, the integration into lectures of techniques such as buzz groups, brain-dumping, quizzes and pyramids (snowballing), and use of the Socratic method to stimulate critical thinking may assist educators to transition from teacher-centeredness to student-centeredness.

The learning styles identified also has implications for curriculum design. Students who are competitive and avoidant prefer to be told what to learn in the curriculum; specifically, avoidant learners tend not to set productive learning goals. Being given predetermined content and objectives thus suit their motivation for learning. In student-centered learning the idea of choice in a curriculum (what and how to study) means that students identify their own learning needs and set goals for what, when and how they will meet them. Curriculum designs that elicit student choice and activity in learning include, among others, problem-based learning, resource-based learning, experiential/personal relevance approach^[1] and team-based learning, a version of the flipped classroom.^[24]

To make the most of learning styles in a student-centered

environment educators are required to relinquish supreme authority but they do not give up their academic and pedagogic leadership role. This leadership role can only be fully enacted when educators are trained accordingly and have the necessary materials, resources and support to make the shift to student-centered teaching. Proper educator training and technological support for the integration of learning technologies in the classroom is essential for student-centered learning.^[25] In this context where teacher facilitative styles are low and students least prefer independence in learning the integration of technology, which is natural to them will go a long way towards building students' confidence and self-esteem. The use of technology will also increase students' propensity towards collaboration by "chatting" with their peers and teachers about the work or learning issues they might have.

The influence of sociocultural variables on the way students learn and their implications for the learning environment is not well known. With the exception of the US the influence of sociocultural factors is a neglected area in learning styles research.^[7] However, as multiculturalism, internationalization and transnational education become more prominent in higher education it is likely that research into cultural variations in learning styles too will increase. Learning styles are influenced by personality attributes, prior learning and experience, culture and the society people live in.^[6] The differences between western and traditional societies are well documented, and even more so, the differences between developed and developing countries. Malawi is a developing country where the traditional values of patriarchy dominate relationships between different people and positions. In patriarchal societies the role of women are subverted, demanding submissiveness, humble obedience and an unquestioning mind, particularly of authority. The implication for student-teacher relationships – the heart of student-centered learning – is that of passivity and unquestioning obedience on the part of the student. The authoritative teaching style of KCN educators reinforces such learner behaviours. The motivation for learning thus is to memorise information using a surface approach to learning,^[7] which are the outcomes of high avoidance and low independence in learning found in this study.

4.2 Limitations

A single educational institution was used and as such, the findings are generalisable only to settings of a similar con-

text and demography. The use of inferential statistics may have provided insight into associations between key variables implicated in student-centered learning.

4.3 Recommendations

While knowledge in the field of culture-specific learning styles grows educators should continue with the principle of adopting a variety of approaches that guide students to a variety and multiple ways of learning. Using their knowledge of students' learning styles it is recommended that educators adopt learner-centered approaches that promote and accommodate multiple ways of learning rather than the simplistic matching with students' learning styles.

Future research should determine the influence learning styles have on clinical practice and leadership in clinical settings. Determining learning styles in an online learning environment opens opportunities for further research, including the testing of learning styles inventories in a range of Learning Management Systems.

5. CONCLUSION

BSN graduates' preference for the Competitive and the Avoidant learning styles reflects an alignment with a teacher-centered paradigm and a lack of diversity in the use of learning styles during their course of study. Learning styles influence academic outcomes and the development of a repertoire of learning styles instils awareness of learning abilities. Educators in the BSN programme need to enhance a student-centered learning environment to promote the use of diverse learning styles among learners to foster the development of autonomy, independence and responsibility among graduate nurses. The preference for Competitive and Avoidant learning styles is a factor within the BSN programme that might have made the learners to study for grades and this is not effective for quality learning. A low to moderate preference for independent learning style further negates student-centered learning. Fundamental teaching shifts are essential in the BSN programme in an effort to promote student-centered learning where teacher-student relationships, student choice in learning and student responsibility for learning are central to the programme's viability and success.

CONFLICTS OF INTEREST DISCLOSURE

The authors declare that they have no competing interests.

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