How Online Learners Perceive Preparedness and Learning After Discovering Personal Learning-Style Preferences

SHANNON VOYLES

November 2013

Abstract

Many students withdraw from online learning because of their low levels of satisfaction and preparedness, and students are often unprepared to adapt their learning habits to meet the demands of online learning. However, the way in which students incorporate knowledge about their own learning styles into their self-concept as learners and their perceptions of preparedness to be an online student has not been understood. The purpose of this qualitative, exploratory, single-case study was to discover how students incorporated knowledge about their personal learning preferences into their perceptions of preparedness in the online college classroom and of online learning in general.

# Introduction

Online education is becoming increasingly popular among students of all ages, abilities, and locations (Allen & Seaman, 2010, 2013; Armstrong, 2011; Bristow, Shepherd, Humphreys, & Ziebell, 2011; Gaytan, 2009; Park & Choi, 2009). However, with increased enrollment, the number of students who withdraw also increases (Scot, Callahan, & Reed, 2008). Many students withdraw from online learning because of their low levels of satisfaction and preparedness (Hsieh & Dwyer, 2009). Students are often unprepared to adapt their learning habits to meet the demands of online learning (Hsieh & Dwyer, 2009).

Learning style theory is an area in the field of education that includes many definitions, opinions, and applications (Bergsteiner, Avery, & Neumann, 2010; Evans, Cools, & Charlesworth, 2010; Ivie, 2009; Kinshuk, Lui, & Graf, 2009; Rakap, 2010; Scales, 2008; Turnbull, 2009). Many instructors gather information about learning styles as a preassessment tool to determine if a student will be successful in the online education environment (Cagiltay, 2008; Milligan & Buckenmeyer, 2008; Park & Choi, 2009). Other instructors use a knowledge of learning styles as a basis for designing the curriculum and content of a course (Cagiltay, 2008; Featro, 2011; Graf, Kinshuk, & Lui, 2009; van Rensburg, 2009). This study was designed to meet the need to understand the ways in which students incorporated information about their learning styles in describing their perceptions of online learning and their own level of preparedness for an online program. Understanding the perceptions of the students enrolled in online courses may improve retention rates (Dobbs, Waid, & Del Carmen, 2009).

## Purpose of the Study

The purpose of this qualitative, exploratory, single-case study was to discover how students incorporated knowledge about their personal learning preferences into their perceptions of preparedness in the online college classroom and of online learning in general. A phenomenological approach was used. Participants included a purposeful sample of 14 first time students enrolled in their first or second course in an online degree program within a traditional university in the U. S. Midwest. The unit of analysis was an individual student. Initially, participants completed the Index of Learning Styles (ILS; Felder & Spurlin, 2005; see Appendix A), a questionnaire developed to measure learning styles as defined by Felder and Silverman (1988). In the ILS, learning styles were represented dichotomously (active vs. reflective, sensing vs. intuitive, visual vs. verbal, and sequential vs. global). Participants were informed of the learning style indicated in the results of their individual assessment. Each participant then completed diary entries about their initial perceptions and thoughts regarding online education and their preparedness to learn in an electronic classroom. A diary prompt was used (see Appendix B). Time was then allowed for students to consider their results and complete approximately a week of work in their classes, after which they completed another diary entry. Open-ended, semistructured telephone interviews were then conducted, with an Interview Guide used (see Appendix C). Participants were again asked about their perceptions regarding online education and their preparedness to learn in an electronic classroom.

# Literature Review

## Metacognition and Self-knowledge

Theories of metacognition are applicable to the understanding of one’s learning styles. Flavell, who first used the term ‘metacognition’, defined it as the use of monitoring and understanding of one’s own cognitive processes (Zulkiply, Kabit, & Ghani, 2008). It is the knowledge and understanding that one has of him or herself as a learner and of learning (Ndidiamaka, 2010; Pimentel & Mackenzie, 2008; Schraw & Dennison, 1994; Zulkiply et al., 2008). This higher-order mental process enables students to control their own learning process (Heidari & Bahrami, 2012; Vukman, 2012), assess their learning, and use strategies to correct errors in their comprehension (Schraw & Dennison, 1994). Students who are aware of their cognitive abilities can adapt their learning methods as necessary (Huff & Nietfield, 2009). In their study, Khonamri and Kojidi (2011) found that there is a connection between metacognitive awareness and comprehension monitoring. Their participants were English Language Learners. Their results were that the more metacognitive awareness the participants had of reading strategies, the more comprehension monitoring the participants did (Khonamri & Kojidi, 2011).

Flavell (1979) broke the theory of metacognition into two dimensions, which include metacognitive knowledge and metacognitive experiences or regulation. He then broke knowledge down into three categories that include person variables, task variables, and strategy variables (Flavell, 1979). The person variables category of metacognition includes the knowledge that an individual has about his or her own learning. This knowledge includes beliefs about the person as a learner, the belief that he or she may learn more effectively using one learning style rather than another, and what the learner believes about how others learn information (Flavell, 1979). Baker & Brown (1984) later supported Flavell’s categories by setting their own categories of knowledge about cognition and self-regulation.

The theory of metacognition and person variables centers on the theory of self-knowledge. Self-knowledge includes knowing one’s strengths and weaknesses (Pintrich, 2002). By being aware of personal preference with learning strategies, students can avoid relying on only one method and find a more appropriate method for the material (Pintrich, 2002). The accuracy of this self-knowledge is important. Students need to have an accurate perception of their knowledge, strengths, and weaknesses in order to correctly apply them and learn (Chiu & Kuo, 2010; Pintrich, 2002). Metacognitive knowledge is linked to success in the classroom; students who are aware of different learning strategies are more likely to use them than students who are not metacognitively aware (Pintrich, 2002). Additionally, students who have metacognitive awareness are better able to reflect on their learning and performance (Kruger & Dunning, 1999). In their study, students with poor cognitive abilities estimated they performed better than their peers and were less able to identify areas of an assessment where they answered incorrectly (Kruger & Dunning, 1999). However, students with stronger cognitive abilities more closely assessed their performance on assessments and could identify questions on the assessment they answered incorrectly (Kruger & Dunning, 1999). A lack of self-knowledge can hinder a student’s success in learning and in the classroom. Pintrich (2002) provides an example of a student who knows that she does not understand mathematical material well when reading about it in the text. Knowing this, the student can apply other learning methods when learning the material to strengthen her understanding of the concepts (Pintrich, 2002). This is also an example of how metacognition helps students self-scaffold to solve problems through setting goals, organizing resources, evaluating information, and retaining information (Chiu & Kuo, 2010).

Metacognition has been defined in many different ways (Baker & Brown, 1984; Flavell, 1981). Because the theory is used in many disciplines, including cognitive psychology, developmental psychology, and education, it has been examined from multiple perspectives, contributing to the differing definitions (Rahman & Masrur, 2011). While many researchers agree that metacognition refers to knowledge and control of thinking processes, the details they include define it slightly differently for each use. Some define it by using knowledge, skill, and experience (Hacker, 1998); some take the definition further to include that it is about present thinking processes and having the knowledge of those processes (Pressley, 1995). Still others define it as knowledge and regulation of cognition (Nelson & Narens, 1992). Although researchers from a range disciplines define the theory differently, they agree to divide it to include metacognitive knowledge and metacognitive regulation and control (Rahman & Masrur, 2011).

## Awareness of Learning Style Benefits

There are many benefits in being aware of and using learning styles in the educational setting. Teaching students about their learning style preferences and how to manage those preferences is critical to their scholastic achievement (Moallem, 2007). Additionally, as discussed by Scales (2008), learning styles are most valuable when used as a tool for the student and their self-development, rather than used as a way to categorize students, as most current researchers do. Students should not only be shown what their learning style is, but also how to enhance that style and, as a result, their learning (Scales, 2008). In addition, by understanding personal preferences with learning styles, students can learn with increased motivation by using their strengths and strengthening their weaknesses (Bishka, 2010; Gantasala & Gantasala, 2009; Rakap, 2010). This also allows students to understand learning methods and to select the most appropriate one for their learning (Evans et al., 2010). This is vital for the growth of the learner (Evans et al., 2010).

Students do learn differently from one another (Naimie et al., 2010). Studies have shown that performance in different subjects is related to learning style preferences (Naimie et al., 2010). It is most useful when students identify their learning preferences at the beginning of their education (Guven & Ozbek, 2007), although it is not clear whether students incorporate and use this knowledge immediately after learning or after some time. When students understand their preferences, they are better prepared to use a variety of techniques to strengthen their learning (Romanelli et al., 2009). Additionally, when educators and students are aware that students learn differently, they can use methods to help students understand material differently and to make learning more effective (Kinshuk et al., 2009; Moallem, 2007).

Battalio (2009) found that learning styles are associated with student success. Using data from 120 participants, the researcher found that learning styles might also be a factor that influences student participation and attitudes about online learning (Battalio, 2009). The researcher analyzed the data from many perspectives, both on a dimension-by-dimension basis, as a group of dimensions, and in comparison with quiz grades. While the participants were located at the same university, they were enrolled in one of nine courses.

At the conclusion of their study, Zapalska and Brozik (2006) determined that teachers should use learning style assessments and provide their students with the results of their learning styles. By sharing this information, students are better able to take control of their learning to become active participants in their education (Zapalska & Brozik, 2006). The focus of their study was to show that learning styles should be considered when designing a course (Zapalska & Brozik, 2006). They furthered these findings with the data that was collected from participants who were enrolled in the same class at a university. In a study performed by Morris and Ozkan (2006), the researchers used the ILS and a self-developed questionnaire that focused on online learning. The researchers then used the information to examine strategies that can lead to student success in the online classroom. Sixty-four students participated in the study. The researchers found that by encouraging students to learn their preference and expand their methods for studying and learning, they could become more effective learners (Morris & Ozkan, 2006). Teachers should also ensure that they are using multiple styles in their classrooms to help students become more proficient in all styles, not just consistently teaching using their preferred style (Morris and Ozkan, 2006). The results of this study correspond with the findings of others who stated that when students are taught in methods that do not match their learning style, it could be difficult for them to learn the material (Zapalska & Brozik, 2006). It is important to teach students about their own styles; teachers cannot teach in every style at all times. When students are taught using different styles other than the one they prefer, this can help them learn to adapt (Kinshuk et al., 2009). When they are aware of their styles, they can purposefully adapt to expand their learning abilities to better understand in environments that do not match their preferences (Naimie et al., 2010). This is important for students because it will help them prepare for classes where the instructor does not teach to multiple styles and for other life skills that are not adaptable to preferences (Kinshuk et al., 2009). This can lead to improvements with learning and performance of students in a classroom as well as help students to expand beyond their preferences (Guven & Ozbek, 2007; Hawk & Shah, 2007). Teaching students to adapt in their learning style can affect them beyond their educational career as well due to the demand of flexibility in many careers (Moallem, 2007).

## Student Awareness

With the growing number of methods for how students can earn a degree, students must learn to make effective choices with regard to their learning and how they learn (Evans et al., 2010). Helping students become aware of their learning preferences can help them identify their strengths and weaknesses, which can aid them in enhancing their skills and their ability to self-regulate (Graf et al., 2009; Vonderwell & Savery, 2004). This can also help students to understand why they may have had difficulty with learning material in the past (Graf et al., 2009) and provide them with the critical ability to self-manage their learning (Pillay et al., 2007). In a study of onsite students conducted by Cagiltay (2008), to determine whether knowing their own learning styles is helpful to students, it was concluded that students should know their learning preferences in order to be able to adapt in the classroom to meet their personal learning needs. This awareness and adaptability was determined to lead to greater success in the classroom for learners, regardless of their learning preference (Cagiltay, 2008). According to van Rensburg (2009), students’ needs are met when they are taught how to learn and when their personal preferences are viewed as acceptable differences. This can help students to realize the value in their differences and the insight that they learn differently from one another (van Rensburg, 2009). Equipped with this knowledge, students can see the value in their own personal learning style and the value in those differences (van Rensburg, 2009). This knowledge can also help students and instructors to form productive relationships (van Rensburg, 2009). However, students are often not aware of their personal learning preferences or about learning styles in general (Rogers, 2009). By having this unawareness, they students are not learning to their fullest potential (Rogers, 2009).

In a study to determine the effect of learning styles on student performance in the online classroom, Rogers and McNeil (2009) found that students should have the opportunity to be aware of and understand their learning styles. Additionally, they stated that students should also understand curriculum delivery and the methods that are more suited to their personal preferences so they can make informed decisions to support their learning (Rogers & McNeil, 2009). In their study, the 193 participants were distributed across many majors and attended the same online university. The participants completed the Meyers Briggs personality test. The researchers’ findings were that specific types of learners find success with different teaching methods, including face-to-face instruction and online learning. They added that instructors should be aware of learning style differences and that students should be aware of their personal preferences in order to select the most appropriate learning methods for their preferences (Rogers & McNeil, 2009). In a study with sixty-three on site MBA students, Gantasala and Gantasala (2009) found that students should be aware of their learning style preferences in order for them to choose the correct style for a given learning activity. The researchers also found that when students understand their personal styles, they can use these styles to learn with greater motivation. However, this study was performed at a single location and time.

## Student Perceptions

Perceptions of students are essential to understand; their perceptions influence their ease with online learning (Tanner, Noser, & Totaro, 2009). Students have a wide range of perceptions about online learning; these perceptions are essential for improving efficiency of online learning (Yaghoubi et al., 2008). Learning styles may be a factor that contributes to student attitudes about learning online (Battalio, 2009). While some may have concerns regarding interaction with instructors and peers, they typically state that online learning is effective (Conrad & Pedro, 2009). However, students are often less satisfied with online learning as compared to traditional learning in a brick and mortar classroom (Pillay et al., 2007). One study, performed by Seok et al. (2010) found that there is a difference in perception of online education based on the gender of the student. Scholars, including Seok et al. (2010) and Bristow et al. (2011), found that female students are more likely than males to state that online learning is effective and that female students were more likely to have positive perceptions of online education (Bristow et al., 2011; Seok et al., 2010). Seok et al. (2010) also found that students typically had a lower perception of online learning than instructors did. In another study, Bristow et al. (2011) found that of their sample, 30% had negative perceptions of online learning. Bristow et al. (2011) collected data from 801 students from a single university. While their sample size was large, the researchers noted that future studies should include a more geographically diverse population and in a wider range of college sizes and types (Bristow, et al., 2011). Seok et al. (2010) also used a large sample size with 193 instructors and 141 students participating. While their findings were robust, they also extended well beyond the two research questions posed in the study.

Online education provides learners with the freedom and flexibility that brick and mortar classrooms cannot provide (Park & Choi, 2009). This flexibility often translates into the perception that the online environment also creates an easier avenue for academic dishonesty (Gaytan, 2009; Spaulding, 2009). However, studies have shown that there is no increase in academic dishonesty based on the delivery method (Spaulding, 2009). In some cases, the less experience someone has with online learning, the more likely he or she is to believe that it is easier to cheat in an online course (Bristow et al., 2011).

Students often have the perception that online learning is faster, easier, less rigorous, and more flexible than classroom learning and is the method to use when the learner is uninterested in the content (Journell, 2010). In the study, performed by Journell (2010), eleven students and one instructor were interviewed regarding their perceptions of online learning. Participants were high school students who were all enrolled in the same course with the instructor who was also a participant (Journell, 2010). While the researcher found perceptions of learners before they course began, he also found that as the class progressed, many perceptions of the participants changed (Journell, 2010). Participants stated that it was self-motivation rather than the delivery that caused them difficulty (Journell, 2010). However, this study included only a few participants for data collection. While the data was robust, further studies would help to increase the generalizability of the findings.

At the opposite end of the spectrum, students also may have perceptions that online learning is more enjoyable and is of a higher quality than classes without technology (Tanner et al., 2009). In a study conducted by Tanner et al., the researchers used a questionnaire on a pilot study of twenty business students. Once revised, the questionnaire was distributed to 890 participants who were enrolled in two universities. One hundred ninety participants had taken online courses, while seven hundred had not (Tanner et al., 2009). The researchers also collected data from faculty members in order to compare perceptions. The researchers used a convenience sample for students and a national random sample that included 1175 faculty members (Tanner et al., 2009). While the results strongly suggest that faculty and students have great differences in perceptions of online learning (Tanner et al., 2009), the study would have benefited by using faculty members who also work at the same university as the participants rather than compare a small location of students to a nationwide sampling of faculty. Student participants also reported that they perceived online learning to require more self-discipline and a sense that they taught themselves the material (Tanner et al., 2009).

Those who support online education argue that it provides students with a more meaningful educational experience as well as flexibility and convenience (Conrad & Pedro, 2009). Online learning can also help students to share more information with one another (Conrad & Pedro, 2009). Benefits to online learning include flexibility, immediacy of feedback, a reduction of pressure, and lifelong learning (Conrad & Pedro, 2009).

The preparedness of online learners is an important consideration for universities as they develop courses (Blankenship & Atkinson, 2010). Students have higher satisfaction when they have positive perceptions of preparedness (Ho, Tsung-Hsein, & Bishan, 2010; Park & Wentling, 2007). These areas of preparedness, or readiness as it is also called, include time management, adaptability, motivation, and an understanding of individual learning styles (Pillay et al., 2007). However, when students’ perceptions are incorrect when compared to reality, their perceptions can make it more difficult to adapt to the online learning platform (Mahoney, 2009).

# Research Method

A qualitative single-case study design was used for this study with a phenomenological approach.

Participants completed the ILS to identify their individual learning preferences. The data from the ILS were used only to inform the participants about their individual preferences. The aim of this study was to understand how participants incorporated the awareness of their learning preferences, rather than to determine or evaluate their actual learning preferences.

After completing the ILS and reviewing their individual results, participants viewed the explanation of their results, as indicated by the authors of the ILS (see Appendix D). Participants then completed diary entries and an individual telephone interview. The first diary prompt was sent to participants with the ILS information so that they could complete the diary immediately after being informed of the results of the ILS. In this way, initial responses were captured. Seven days later, the second diary prompt was e-mailed to participants along with a request to schedule an interview. Interviews were audio-recorded to increase accuracy and to permit more attentiveness to the participant (Patton, 2002).

After hearing the results of the questionnaire and reviewing an explanation of their learning preferences, participants wrote in their diaries about their perceptions of online learning and their preparedness to learn in an electronic classroom. One week later, after the participants had completed some initial coursework, a second, similar diary entry was completed. Data were collected through electronic communication and telephone interviews. This method of data communication was appropriate for communicating with participants located throughout the world and accustomed to communicating online for their learning programs.

The data were collected, organized, reduced, and analyzed for themes and clusters. Data were analyzed first for individual participants and then for the case as a whole. No direct incentive was offered to participants for their involvement in the study. Participants were told in the Informed Consent form (see Appendix E) that this information might help them with learning.

## Sample

Participants included 14 undergraduate students enrolled in the first or second online course in their academic careers. This delimitation was chosen because students form their initial perceptions of their preparedness for a program at the beginning. Participants were selected purposefully from an online program within a traditional university in the U. S. Midwest. The purposeful sample included only students who were just beginning their online degree programs. The selected university provided e-mail addresses for all students enrolled in their first or second online course at the university. Participants were recruited by means of the e-mail information obtained from the university.

The sample size was determined based on data saturation (Francis et al., 2010; Glaser & Strauss, 1967). All participants who remained active in the study were interviewed, and diary entries were analyzed, until data saturation was met (Francis et al., 2010). The small sample size enabled in-depth responses from participants (Yin, 2009). Because the participants were online students, the study requirement of access to a computer and the Internet did not bias the sample against individuals without online access.

The unit of analysis for this study was the online university student enrolled in the first or second class of an online degree program. These students were the focus of the study because online students often have difficulty in adapting to the online learning environment when they begin their online education (Hsieh & Dwyer, 2009). Thus, the level of preparedness of these students for online education was an issue of concern.

## Data Collection, Processing, and Analysis

Before data collection began, the IRBs of Northcentral University and of the selected university granted permission to conduct the study. E-mail information was obtained from the university where participants were students. The selected university provided e-mail addresses for all students enrolled in their first or second online course at the university. Potential participants were then contacted by e-mail (see Appendix F). Those who responded were sent a link to access the ILS (see Appendix A) along with instructions for completing the instrument. They were also given a link to locate the instructions for analyzing the results (see Appendix D).

After participants completed the ILS, the information on the website informed them of their learning styles in terms of four categories: information processing (active vs. reflective), information perception (sensing vs. intuitive), sensory input (visual vs. verbal), and understanding process (global vs. sequential). Participants then received an e-mail prompt to complete their diary entries. At the same time, they received a brief set of demographic questions (see Appendix G). Participants returned the diary entries by e-mail, completed their school assignments for a week or longer, and then received an e-mail with the second diary prompt. They completed their diary entries and returned the entries by e-mail. After that, telephone interviews were conducted.

Data were collected over a period of 4 months, from March through June 2013. This time interval was sufficient for e-mailing additional potential participants as they enrolled in the university, which had a rolling enrollment and rolling course start dates. Most participants began and completed the study within a 2-week period.

During the individual interviews, questions were asked slowly and repeated when necessary. The questions followed a preset order but remained fluid (Moustakas, 1994; Yin, 2009). The interview was used to gather data regarding how students incorporated the knowledge acquired from ILS results about their learning styles to form their perceptions of preparedness and online learning.

**Data processing.** Immediately after the interview, the audio-recording was checked to ensure that the conversation was recorded correctly. There were no malfunctions in the audio-recording equipment. To ensure that data were not missed, areas of ambiguity were clarified by requesting more information or details from the interviewee (Patton, 2002). This verification was necessary with only two participants. Data verification strengthened the trustworthiness of the study (Baxter & Jack, 2008).

A case study database (Yin, 2009) was created. The database included the completed ILS forms, the ILS explanations, the diary entries, and the transcriptions. The transcriptions were completed immediately after the interviews. All responses were printed and stored together in a locked cabinet in my home office so they were private, yet easy to retrieve if needed.

**Analysis.** The unit of analysis for this study was the individual student. The results of the ILS were not used to inform the study. The data analyzed for the study were derived only from the diary entries and telephone interviews.

Before analysis began, the Epoche process was started to ensure that there were no preconceived ideas or biases present when analyzing the data. All data were treated as being of equal value, and all data were considered because no position was taken (Moustakas, 1994). This approach allowed for the phenomenon to present itself rather than permitting preconceived ideas to interfere with the analysis (Moustakas, 1994).

In a process called bracketing, personal experiences and biases had to be set aside so that the inquiry could be focused directly on the participants. For example, an assumption that participants would find the information about personal learning styles helpful, had to be bracketed and removed (Moustakas, 1994). By bracketing this preconceived assumption, it was possible to discover whether participants experienced the knowledge of personal learning styles as beneficial.

The qualitative, phenomenological method used to analyze the data was a modification of van Kaam’s approach (Moustakas, 1994). The first step of this method included listings and preliminary groupings of every expression related to the experience (Moustakas, 1994). Each transcript and diary entry was read and highlighted for this step, including the relevant expressions and quotes. The second step was to determine the invariant constituents. This step helped to reduce and eliminate data that did not inform the study or address the research questions or problem. The third step was to cluster the invariant constituents into themes (Moustakas, 1994). Word tables were created for each participant based on the themes that emerged for each research question. The fourth step was to validate the themes by checking them against the transcript and diary entries. The fifth and sixth steps were to create an individual textural description of the experience for each participant and then an individual structural description (Moustakas, 1994).

The final step in data analysis was to create the composite description (Moustakas, 1994). The composite description was also the final component of the case study database. During the writing of the composite description, the research questions were answered from both diary entries and interview transcripts. Using the data to answer the research questions ensured that the data were reduced to include only material that was specifically focused on answering the research questions of the study (Miles & Huberman, 1994). Two distinct diary entries completed at two different times during the course program, along with data from personal interviews, ensured data triangulation (Yin, 2009).

After the data were analyzed and interpreted, and conclusions were drawn, participants member-checked the results. Member checking helped to clarify the interpretations and allow the participants the opportunity to contribute any additional perspectives that may have been overlooked (Baxter & Jack, 2008). As participants recommended no corrections or additions, no changes were made.

Data were verified for confirmability, dependability, credibility, and transferability (Miles et al., 2014). Confirmability was addressed because the conclusions were drawn only from the data (Miles et al., 2014), and personal assumptions were addressed using Epoche (Moustakas, 1994). The data trail for the study was detailed enough to be audited (Lincoln & Guba, 1995). Credibility for the study was achieved by including descriptions and data in detail, including direct quotations from participants. Dependability was addressed by ensuring that research questions were clear, data were collected as appropriate to address the research questions, and a field test was completed by colleagues (Miles et al., 2014). The findings were also verified for transferability. The sample was well described, and a similar sample could have been selected at other universities. The findings were sufficiently detailed so that they could provide insights to readers in other settings and could be assessed by other researchers in their individual settings (Miles et al., 2014).

## Results

Table 1 contains the demographic information for the 14 participants. Nine participants were female. Eight participants (57.1%) had completed some college courses prior to beginning the online program. All reported their ethnicity as White or Caucasian. Participants ranged in age from 34 to 58 years old (*M* = 42.2).

Table 1  
*Demographic Characteristics of Participants*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Participant | | Gender | Age | Highest educational level |
| 1 |  | Male | 50 | General Educational Developmenta |
| 2 |  | Female | 35 | Some college |
| 3 |  | Female | 39 | Associate’s degree |
| 4 |  | Female | 34 | Some college |
| 5 |  | Male | 44 | Some college |
| 6 |  | Female | 58 | Associate’s degree |
| 7 |  | Female | 51 | Some college |
| 8 |  | Male | 38 | High school |
| 9 |  | Female | 38 | Some college |
| 10 |  | Male | 51 | Some college |
| 11 |  | Female | 39 | Some college |
| 12 |  | Male | 36 | High school |
| 13 |  | Female | 45 | General Educational Development |
| 14 |  | Female | 34 | Some college |

aGeneral Educational Development refers to the commonly known GED.

Following is a restatement of Research Question 1 and the results for the research question.

**Research Question 1.**  How do students incorporate knowledge about their learning styles into their perceptions of online learning?

A summary of all themes for Research Question 1 is shown in Table 2.

Table 2  
*Themes Identified in Research Question 1*

|  |  |
| --- | --- |
| Theme | Number of participants |
| Made no change | 6 (43%) |
| Gained more confidence, felt less intimidation | 6 (43%) |
| Realized online learning was more suited to some learning styles than to other styles | 5 (36%) |

*Note. n* = 14.

Following is a restatement of Research Question 2 and the results for the research question.

**Research Question 2.**  How do students incorporate knowledge about their learning styles in terms of their feelings of preparedness for online leaning?

Table 3  
*Themes Identified in Research Question 2*

|  |  |
| --- | --- |
| Theme | Number of participants |
| Felt more prepared for online learning | 7 (50%) |
| Changing the study environment | 4 (29%) |
| Changing the approach to studying | 10 (71%) |
| Becoming aware of one’s own style | 13 (93%) |

*Note. n* = 14.

## Recommendations

**Practical recommendations.** Based on the findings of the current study, several practical applications are suggested. It is recommended that university administrators, course designers, and instructors educate first time online learners about their personal learning styles early in their educational journey. Given the diversity of online students, determining ways to prepare them effectively is important. The identification of learning preferences is most useful at the beginning of an educational program (Guven & Ozbek, 2007). Although only first time online students were included in this study, other students may also discover better methods for learning and studying after discovering their learning preferences.

The findings of this study demonstrated that educating students about their personal learning styles may provide them with information that results in higher levels of confidence. Thus, course and program designers can create courses that educate students about their personal learning styles to help improve learner confidence and lower the level of intimidation for first time online learners. Learning this information at the beginning of a degree programs would allow participants to use this information more effectively throughout their academic career. When students understand their preferences, they are better prepared to use a variety of techniques to strengthen their learning (Romanelli et al., 2009).

Educators in online educational institutions could educate learners about their personal learning styles in an orientation before courses begin or by adapting the first course that students take at the university. In this way, students would have this information in the first weeks of their program. By providing this information to students as early as possible, students would be able to incorporate this knowledge at the start of their degree program to become more confident, more prepared, and better able to establish the environment and approach to their education.

## Conclusions

The results of this study indicated that many of the participants experienced a change in their perceptions of online learning, in some cases without being aware that their perceptions had changed. Some participants found the knowledge of learning styles useful for broadening their understanding of online learning. The findings imply that knowledge of personal learning styles is beneficial and may enable students to improve their academic performance. Educating students about their learning styles may help students to strengthen their metacognition. It is recommended that educators for online institutions educate first time online learners about their personal learning preferences at the start of their online programs as a way of providing them with the information they need to build confidence and improve their metacognition.

References

Allen, I. E., & Seaman, J. (2010). Class differences: Online education in the United States, 2010. Sloan Foundation Publication. Retrieved from http://sloanconsortium.org/publications/survey/pdf/class \_differences.pdf

Allen, I. E., & Seaman, J. (2013). Changing course: Ten years of tracking online education in the United States. Babson Survey Research Group and Quahog Research Group, LLC. Retrieved from <http://www.onlinelearningsurvey.com/reports/changingcourse.pdf>

Armstrong, D. (2011). Students’ perceptions of online learning and instructional tools: A qualitative study of undergraduate students’ use of online tools. *The Turkish Online Journal of Educational Technology, 10*, 222-226.

Baker, L. & Brown, A. L. (1984). Metacognitive skills and readings. In P. D. Pearson (Ed.), *Handbook of researching research.* New York, NY: Longman.

Battalio, J. (2009). Success in distance education: Do learning styles and multiple formats matter?. *The American Journal of Distance Education, 23,* 71-87. doi:10.1080/08923640902854405

Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The Qualitative Report, 13*, 544-559.

Bergsteiner, H., Avery, G., & Neumann, R. (2010). Kolb’s experiential learning model: Critique from a modeling perspective. *Studies in Continuing Education, 32*,29-46. doi:10.1080/01580370903534355

Bishka, A. (2010). Learning styles fray: Brilliant or batty?. *Performance Improvement, 49*(10),9-13. doi:10.1002/pfi.20181

Blankenship, R., & Atkinson, J. (2010). Undergraduate student online learning readiness. *International Journal of Educational Research, 5*, 44-54.

Bristow, D., Shepherd., C., Humphreys, M., & Ziebell. (2011). *Marketing Education Review, 21*, 241-250. doi:10.2753/MER1052-8008210304

Cagiltay, N. (2008). Using learning styles theory in engineering education. *European Journal of Engineering Education, 33*, 415-424. doi:10.1080/03043790802253541

Chiu, M. & Kuo, S. (2010). From metacognition to social metacognition: Similarities, differences, and learning. *International Journal of Education Research, 3*, 321-338.

Conrad, D., & Pedro, J. (2009). Perspectives on online teaching and learning: A report of two novice online educators. *International Journal for the Scholarship of Teaching and Learning, 3*(2),1-17.

Dobbs, R., Waid, C., & Del Carmen, A. (2009). Students’ perceptions of online courses: The effect of online course experience. *Quarterly Review of Distance Education, 10*(1), 9-26.

Evans, C., Cools, E., & Charlesworth, Z. (2010). Learning in higher education- How cognitive and learning styles matter. *Teaching in Higher Education, 15*,467-478.

Featro, S. (2011). The relationship between learning styles and student learning in online courses. In M. Koehler & P. Mishro (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference, 2011* (pp. 266-273). Chesapeake, VA: Association for the Advancement of Computing in Education.

Felder, R., & Silverman, K. (1988). Learning and teaching styles in engineering education. *Engineering Education, 78*, 674-681.

Felder, R., & Spurlin, J. (2005) Applications, reliability, and validity of the Index of Learning Styles. *International Journal of Engineering Education, 21*,103-112.

Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. *American Psychologist, 34*, 906-911.

Flavell, J. H. (1981). Cognitive monitoring. In W.P. Dickson (ed.) *Children’s oral communication skills* (pp. 35-60). New York, NY: Academic Press.

Francis, J., Johnston, M., Robertson, C., Glidewell, L., Enteistle, V., Eccles, M., & Grimshaw, M. (2010). What is an adequate sample size? Operationalising data saturation for theory-based interview studies. *Psychology and Health, 25*, 1229-1245. doi:10.1080.08870440903194015

Gantasala, P., & Gantasala, S. (2009). Influence of learning styles. *The International Journal of Learning, 16*, 169-184.

Gaytan, J. (2009). Analyzing online education through the lens of institutional theory and practice: The need for research-based and –validated frameworks for planning, designing, delivering, and assessing online instruction. *The Delta Pi Epsilon Journal, 51*(2), 62-75.

Glaser, B., & Strauss, A. (1967). *The discovery of grounded theory: Strategies for qualitative research.* Chicago, IL: Adline Publishing Company.

Graf, S., Kinshuk, T., & Lui, T.-C. (2009). Supporting teachers in identifying students’ learning styles in learning management systems: An automatic student modeling approach. *Educational Technology & Society, 12*(4), 3-14.

Guven, B., & Ozbek, O. (2007). Developing learning style inventory for effective instructional design. *The Turkish Online Journal of Educational Technology, 6*,1-8.

Hachey, A., Wladis, C., & Conway, K. (2012). Is the second time the charm? Investigating trends in online re-enrollment, retention and success. *The Journal of Educators Online, 9*, 1-25.

Hacker, D. (1998). Definitions and empirical foundation. In D. Hacker: J. Dunlosky; & A. Graesser (Eds). *Metacognition in Educational Theory and Practice.* Mahwah, NY: Erlbaum.

Hawk, T., & Shah, A. (2007). Using learning style instruments to enhance student learning. *Decision Sciences Journal of Innovative Education, 5*(1),1-19.

Heidari, F. & Bahrami, Z. (2012). The relationship between thinking styles and metacognitive awareness among Iranian EFL learners. *International Journal of Linguistics, 4*, 721-733.

Ho, L-A, Tsung-Hsein, K., & Bishan, L. (2010). Influences of online learning skills in cyberspace. *Internet Research, 20*(1), 55-71.

Hsieh, P-H., & Dwyer, F. (2009). The instructional effect of online reading strategies and learning styles on student academic achievement. *Educational Technology & Society, 12*(2), 36-50.

Huff, J. D., & Nietfeld, J. L. (2009). Using strategy instruction and confidence judgments to improve metacognitive monitoring. *Metacognition and Learning, 4*, 161-171.

Ivie, S. (2009). Learning styles: Humpty dumpty revisited. *McGill Journal of Education, 44,* 192.

Journell, W. (2010). Perceptions of e-learning in secondary education: A viable alternative to classroom instruction or a way to bypass engaged learning? *Educational Media Journal, 47*, 69-80.

Khonamri, F. & Kojidi, E. (2011). Metacognitive awareness and comprehension monitoring in reading ability of Iranian EFL learners. *Profile, 13*(2), 99-111.

Kinshuk, T., Lui, T., & Graf, S. (2009). Coping with mismatched courses: Students’ behavior and performance in courses mismatched to their learning styles. *Education Technology Research and Development Journal, 57,* 739-752. doi:10.1007/S11423-009-9116-Y

Kruger, J. & Dunning, D. (1999). Unskilled and unaware of it: How differences in recognizing one’s own incompetence lead to inflated self-assessments. *Journal of Personality and Social Psychology, 77*, 1121-1134.

Lincoln, Y. & Guba, E. (1985). *Naturalistic Inquiry*. Newberry Park, CA: Sage.

Mahoney, S. (2009). Mindset of change: Influences on student buy-in to online classes. *The Quarterly Review of Distance Education, 10*(1), 75-83.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis* (2nd ed). Newbury Park, CA: Sage.

Miles, M., Huberman, A.M., & Saldana, J. (2014). *Qualitative Data Analysis: A Methods Sourcebook* (3rd ed.). Los Angeles, CA: Sage.

Milligan, A., & Buckenmeyer, J. (2008). Assessing students for online learning. *International Journal on E-Learning, 7*,449-461.

Moallem, M. (2007). Accommodating individual differences in the design of online learning environments: A comparative study. *Journal of Research on Technology in Education, 40*,217-245.

Morris, B. J., & Ozkan, B. (2006). Accommodating diverse needs of students in online courses: What works!. In E. Pearson & P. Bohman (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2006* (pp. 1423-1428). Chesapeake, VA: Association for the Advancement of Computing in Education.

Naimie, Z., Siraj, S., Abuzaid, R., & Shagholi, R. (2010). Hypothesized learners’ technology preference based on learning dimensions. *The Turkish Online Journal of Educational Technology, 9*, 83-93.

Ndidiamaka, U. (2010). Metacognition and achievement goals as correlates of academic success. *Continental Journal of Education Research, 3*(1), 1-6.

Nelson, T., & Narens, J. (1992). *Meta-memory: A theoretical framework and new findings*. New York, NY: Academic.

Park, J., & Choi, H. (2009). Factors influencing adult learners’ decision to drop out or persist in online learning. *Educational Technology & Society, 12*,207-217.

Park, J. H., & Wentling, T. (2007). Factors associated with transfer of training in workplace e-learning. *Journal of Workplace Learning, 19*, 311-329.

Patton, M. (2002). *Qualitative research & evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Pillay, H., Irving, K., & Tones, M. (2007). Validation of the diagnostic tool for assessing tertiary students’ readiness for online learning. *Higher Education Research and Development, 26*, 217-234.

Pimentel, E. & Mackenzie, N. (2008). Formative assessment in distance learning education with cognitive and metacognitive measurements. *International Journal of Information and Communication Technology Education, 4*(3), 49-58.

Pintrich, P. (2002). The role of metacognitive knowledge in learning, teaching, and assessing. *Theory Into Practice, 41*, 219-225.

Pressley, M., & McCormick, C. (1995). *Advanced educational psychology for educators, researchers, and policymakers*. New York, NY: Harper Collins.

Rahman, F. & Masrur, R. (2011). Is metacognition a single variable?. *International Journal of Business and Social Science, 2*, 135-141.

Rakap, S. (2010). Impacts of learning styles and computer skills on adult students’ learning online. *The Turkish Online Journal of Educational Technology, 9*,108-115.

Rogers, K. (2009). A preliminary investigation and analysis of student learning style preferences in further and higher education. *Journal of Further and Higher Education, 33*, 13-21. doi:10.1080/03098770802638234

Rogers, P., & McNeil, K. (2009). Student learning styles and online course performance: An empirical examination of student success in web-based management courses. *Business Education Digest, 18*, 1-15.

Romanelli, F. Bird, E., & Ryan, M. (2009). Learning styles: A review of theory, application, and best practices. *American Journal of Pharmaceutical Education, 73*(1),1-5.

Scales, P. (2008). *Teaching in the lifelong learning sector*. Buckingham GBR, England: Open University Press.

Schraw, G. & Dennison, R. (1994). Assessing metacognitive awareness. *Contemporary Educational Psychology*, 19, 460-475.

Scot, T., Callahan, C., & Reed, C. (2008). Learning from those you lose: A study of student dropouts in online learning. In J. Luca & E. Weippl (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications, 2008* (pp. 3048-3052). Chesapeake, VA: Association for the Advancement of Computers in Education.

Seok, S., DaCosta, B., Kinsell, C., & Tung, C. (2010). Comparison of instructors’ and students’ perceptions of the effectiveness of online courses. *Quarterly Review of Distance Education, 11*, 25-60.

Spaulding, M. (2009). Perceptions of academic honesty in online vs. face-to-face classrooms. *Journal of Interactive Online Learning, 8*, 183-198.

Tanner, J. R., Noser, T. C., & Totaro, M. W. (2009). Business faculty and undergraduate students’ perceptions of online learning: A comparative study. *Journal of Information Systems Education, 20*, 29-40.

Turnbull, J. (2009). *Coaching for learning: A practical guide for encouraging learning*. London, England: Continuum International Publishing.

van Rensburg, G. H. (2009). The development of a self-assessment learning style instrument for higher education. *South African Journal of Higher Education, 23*, 179-192.

Vonderwell, S., & Savery, J. (2004). Online learning: Student role and readiness. *The Turkish Online Journal of Educational Technology 3*(3), 38-42.

Yaghoubi, J., Mohammadi, I., Iravani, H., Attaran, M., & Gheidi, A. (2008). Virtual students’ perceptions of e-learning in Iran. *The Turkish Online Journal of Educational Technology, 7*, 89-95.

Yin, R. K. (2009). *Case study research: Design and methods* (4th ed.). Thousand Oaks,

CA: Sage.

Zapalska, A., & Brozik, D. (2006). Learning styles and online education. *Campus Wide Information Systems, 27*,325-335.

Zulkiply, N., Kabit, M., & Ghani, K. (2008). Metacognition: What roles does it play in students’ academic performance? *The International Journal of Learning, 15*(11), 97-105.