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# Gender and Learning Strategy Differences in Nontraditional Adult Students' Design Preferences in Hybrid Distance Courses

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## Abstract

*This study describes instructional design elements most valued by nontraditional adult learners in hybrid learning environments that combine limited face-to-face contact with online learning and collaboration. It identifies the online course features and instructional goals selected as most important by a sample of 67 adults. It then compares this group's rankings with those of subgroups based on gender and preferred learning strategies as measured by the Assessing the Learning Strategies of Adults (ATLAS) test. The results of the study support the application of principles of adult learning in developing online environments for adults, identify some differences in learning emphasis by gender and preferred learning strategies, and underscore the importance of providing a variety of learning options in adult learning environments with an online component.*

Higher education is facing dramatic shifts in its demographics and its instructional delivery strategies. The new demographics of higher education identify part-time adult learners as the new majority, with nontraditional working adults now comprising more than 50% of the postsecondary student population and the fastest growing segment of the market (Cappelli, 2003; Levine, 2003; Shea, 2002; Symonds, 2003). One recent prediction estimated a 70% increase in over-35s in postsecondary education between 1985 and 2005 (Cappelli, 2003). According to recent data, over 75% of adults seeking higher education are employed while studying part-time (Cappelli, 2003), many are seeking further education to meet specific career goals (Shea, 2002; Symonds, 2003), and most have other pressing life concerns that make it difficult for them to commit to traditional class schedules (Levine, 2003).

Given the busy and complex lifestyles of these adult learners, who are often referred to as nontraditional adult students, it is not surprising that they have shown a high degree of acceptance of, and even preference for, e-learning and at-distance study opportunities. Some educators have feared that surging emphasis on e-learning would disadvantage adults due to their lack of technology experience and reluctance to lose the familiarity and social benefits of classroom-based instruction (Ausburn, 2003). However, the reality is that many adults have clearly indicated the efficacy of e-learning in meeting their needs, and that the largest audience for online education today is nontraditional adults: working adults age 26 or older who study part-time, hold full-time jobs, and are unable to commit to rigid class schedules imposed by traditional classroom-based programs (Cappelli, 2003; Shea, 2002). A recent study by the Internet agency Education for Adults (2003) reinforced the emphasis by adults on the ability of education programs to fit into their busy lifestyles. This national survey found the three most important

factors is adults' choices of a degree program were an accelerated program format (selected by 36% of respondents), convenience of campus location (32%), and availability of online instructional options (32%).

Many colleges and universities have recognized the growth in their nontraditional adult market and the affinity of many of these students for the flexibility of online learning. Many are responding to this recognition by ramping up their e-learning operations to offer their adult students greater numbers and varieties of online learning opportunities. One e-learning approach that currently enjoys both considerable support in the literature and widespread use in adult-oriented higher education is environments that join online learning with face-to-face experiences. This mixed-mode instructional model, generally termed hybrid, blended, or sandwich learning, has been recognized as an effective alternative that can combine the best features of each model, help foster rapport and interaction among participants, and decrease the psychological distance and isolation which can hamper adults unaccustomed to solitary online study (Horn, 1994; Horton, 2000; Horton & Horton, 2003; "Transforming the Academic Enterprise," 2003; Wolcott, 1996). The hybrid instructional model joins technology, architecture, and people in a "bricks and clicks" learning structure that can be ideal for adult learners because it joins the flexibility of online learning with the collaboration, networking, and sharing of life experiences that are typically valued by adults, while also providing psychological and mentoring support for those adults who may lack experience and comfort with either the academic environment or electronic technology. The hybrid model has often been cited in the literature as the best way to resolve many e-learning concerns expressed by both faculty and adult students, a critical e-marketing strategy, and perhaps the most popular and widely used e-format in the long run (Bleed, 2001; Granitz & Green, 2003; Horton & Horton, 2003).

However, simply offering more online and hybrid courses is not sufficient for success in attracting and retaining the growing nontraditional adult student population. Rather, institutions that succeed in this effort need to recognize, and consider in their online course designs, two critical aspects of adults as students and learners: (a) They have unique needs and characteristics that set them apart from younger learners, and (b) they have individual differences, developed through their life experiences, in their preferred methods of accomplishing learning tasks (Fellenz & Conti, 1989).

The unique learning needs and expectations of adult learners are recognized and expounded in the principles of the andrologogy model developed by Malcolm Knowles. Knowles's model focuses on facilitation of learning rather than on "teaching" and stresses need-to-know, immediacy of application, sharing of life experiences as a source of knowledge, independence and self-direction, and ownership of one's own learning as hallmarks of adult learners (Knowles, 1980, 1984; Knowles, Holton, & Swanson, 1998). Other adult education theorists have also stressed autonomy, self-direction, collaboration, and affinity for real-life learning as key characteristics of adult learners (Brookfield, 1986; Fellenz & Conti, 1989; Merriam & Caffarella, 1999; Tough, 1977).

While adults have a set of commonly recognized characteristics as learners, they also have individual differences. These differences can be deeply ingrained in adults, stemming from their personal life experiences and learned patterns of behavior. Past experiences in social, workplace, and educational experiences can all contribute to adults' habitual preferences, expectations, self-perceptions, and behaviors in learning situations.

In at-distance environments, experiences and expectations based on gender have been shown to relate to adults' attitudes and behaviors, particularly to the technology aspects of online learning (Barrett & Lally, 1999; Kimbrough, 1999; Proost & Elen, 1997; Sullivan, 2001). Another variable often related in the literature to adult learning behavior in all types of environments is learning styles. Assessed by various instruments, learning styles have long been generally accepted as stable and deeply ingrained internal cognitive processes for taking in and processing information (Ausburn & Ausburn, 1978; Kolb, 1984; Kramer, 2002). While learning style research has been extensive, it has often failed to identify differences that can be used for differentiating groups of learners for instructional purposes (Conti & Kolody, 2004). This may be because, as hypothesized by Ausburn & Ausburn (2003), learning style has no effect on learning outcome unless it is specifically related to ability to perform specific learning task requirements. More promising in studying individual differences in adults and their effects in various learning environments may be the emerging concept of learning strategies. Learning *strategies* are believed to be less rigid than learning *styles*, and more related to personal preferences and choices developed through experience and elected by learners in undertaking and accomplishing learning tasks (Conti & Kolody, 1995; Fellenz & Conti, 1993; Smith, 1982). Recent research in strategy preferences has focused specifically on adult learners. This research has indicated that these preferences are invoked regardless of type of learning setting (Conti & Kolody, 2004) and that awareness of personal strategy preferences by both learner and teacher can be used to facilitate adult learning gains in the classroom (D. R. Munday, 2002; W. S. Munday, 2002).

## Problem and Purpose of the Study

With adult students becoming the new majority for colleges and universities, the financial strength of these institutions is increasingly impacted by their ability to attract and retain these students. These adults tend to be nontraditional students: mature in age, studying part-time, requiring flexibility in learning access, and possessing strong experienced-based preferences in selecting and responding to learning tasks and situations. To attract these adult students, many higher education institutions have increased their online learning capabilities and offerings. In particular, the blended or hybrid learning environment, which combines the best features of both online and face-to-face situations, is increasingly favored in higher education.

However, little is currently known regarding the instructional goals and design features preferred by adults with various personal and learning backgrounds in hybrid learning environments. This makes it difficult to maximize the design of hybrid environments to attract and retain adult students. This study addressed this problem, focusing specifically on the online component of hybrid courses and seeking information to help maximize the design of this important technology aspect of hybrid environments. Because gender and learning strategies have been identified in the literature as potentially valuable learner characteristics in differentiating adult learner preferences, they were selected as the independent variables for this study. The study describes the rankings of online course design elements by a group of 67 adults participating in hybrid courses that combined face-to-face meetings with Internet-based self-directed study, interaction, and collaborative learning. Its purposes were to identify the online instructional features

selected as most important by these adults and then to compare their group rankings with those of subgroups based on gender and learning strategies.

## Methods

### *The Subjects and the Hybrid Courses*

The subjects of this study were 67 nontraditional adult students enrolled in five university courses, all taught by the author. All the courses were similarly structured hybrids, combining periodic class meetings with facilitated self-directed study and interactive/collaborative work through a Web-based course site presented via the Blackboard platform. The 67 subjects were all working adults studying part-time for teacher certification or advanced degrees in technical or adult education and training. They represented a mix of males (58.2%) and females (41.8%), an age range of early 30s to mid-50s, and a variety of instructional and administrative jobs in workplaces such as technical centers, community colleges, universities, businesses, public agencies, and community organizations.

### *Instrumentation*

The study's data were obtained from two sources: (a) a questionnaire developed by the author, and (b) the Assessing the Learning Strategies of Adults (ATLAS) self-assessment instrument.

***Research questionnaire.*** The questionnaire asked the subjects to identify their gender and preferred learning strategy as measured by ATLAS. The questionnaire also solicited their selections and rankings of online course site elements and instructional goals for online courses. It presented subjects with a listing of eight features (see Table 2) available to them on their course Internet site. They were asked to rank these eight features in the order they felt represented their importance or value to them personally as distance learners.

The questionnaire also presented a list of 15 course instructional goals (see Table 3) identified by the author's experience and the research literature as important to students' successful completion and satisfactory evaluation of distance learning. All 15 goals were included in the design of the courses experienced by the subjects participating in the study. The subjects were asked to select from these 15 instructional goals the five goals they personally found most valuable in completing their course work at distance, and then to rank the five goals they selected in order of importance to their learning success.

***Assessing the Learning Strategies of Adults (ATLAS).*** ATLAS is a learning strategy instrument recently developed at the author's university and currently under intensive research there as a tool for *instrumented learning* with adults. Instrumented learning seeks to use inventory-type devices to gain understanding of self and others, to improve performance, and to enhance the processes of metacognition and learning how to learn (Blake & Mouton, 1972; Mouton & Blake, 1974, 1984). To date, ATLAS has been used in a variety of learning environments, but it has not yet been systematically applied to online learning. Several studies are currently underway at the researcher's university to

assess the usefulness of ATLAS in differentiating learner preferences in e-learning courses. Thus, the present study contributes to the ATLAS research base as well as that of the online hybrid model.

ATLAS is a self-assessment instrument that classifies adult learners into three groups, based on their preferred strategy or approach to learning. "Navigators" are focused, results-oriented learners who favor efficient and effective learning through a carefully charted learning plan. They are highly organized and demand order, structure, and clear objectives, schedules, and deadlines. "Problem Solvers" are critical thinkers who explore a variety of options in working with learning problems and avoid rapid closure until multiple paths are explored. They are curious, inventive, and intuitive learners who prefer to do things their own way without rigid structure or didactic orders. "Engagers" are passionate learners who love to learn, approach learning from the affective domain, learn with feeling, and seek personal identification and a high level of involvement in a learning project. The key to their learning process is building relationships with others, and they can quickly become bored if they do not experience contact, excitement, and the pleasure of new accomplishments (Conti & Kolody, 2004, 1999, 1995).

***Procedures***

As part of their evaluation activities at the end of their hybrid courses, the 80 students completing the five courses were asked to take ATLAS independently online and then to complete the research questionnaire. Sixty-seven complete and usable questionnaires were returned to the researcher, representing an aggregate response rate of 84% across the five classes. From the questionnaire data, a gender and learning strategy profile of the 67 subjects was compiled, using frequencies and percentages in the subgroups. The profile is shown in Table 1.

**Table 1**

***Subgroup Profile Within the Sample of Adult Learners (N = 67)***

| Subgroup Sample | Frequency | Percentage |
|---|---|---|
| Gender | | |
| Male | 39 | 58.2% |
| Female | 28 | 41.8% |
| Preferred Learning Strategy (measured by ATLAS) | | |
| Navigator | 28 | 41.8% |
| Problem Solver | 23 | 34.3% |
| Engager | 16 | 23.9% |

A chi-square test was performed to compare the ATLAS distribution found among the subject group to the reported national general-population norms for the test, which is a nearly equal distribution of 36.5% Navigators, 31.7% Problem Solvers, and 31.8% Engagers (Conti & Kolody, 1999). While the subject group had somewhat more Navigators (41.8%) and fewer Engagers (23.9%) than the norm, the chi-square revealed the group was not significantly different from the ATLAS norms ($\chi^2 = 1.98$; $df = 2$; $p = .37$) and thus was an acceptably representative group of ATLAS types.

To analyze the design element selection and ranking patterns of the sample and its subgroups, point values were assigned to rankings by reversing ranks and point values (e.g., rank 1 = 8 points; rank 8 = 1 point) so that more points went to higher ranked items. The "score" assigned to various online course features and instructional goals was defined as the sum of the rank points it earned, or ΣRankPoints. Both ranking numbers and ΣRankPoint scores were then used in the analysis of the study's data.

Where major ranking differences were observed between the whole sample group and a gender or learning strategy subgroup or within a subgroup, further examination was made of the actual ΣRankPoint scores within the relevant learner characteristic variable by means of either *t* test (for gender differences) or one-way ANOVA (for ATLAS style differences). Because this study was highly exploratory and based on a fairly small sample, the significance level for the tests of significance was set at $p = .10$ rather than $p = .05$.

## Results and Discussion

### *Online Course Features*

The research questionnaire asked the subjects to rank order a set of eight features commonly found in online course sites. For analysis, rankings were converted to rank points, and these points were summed to create a ΣRankPoint score for each feature. The ranking results for the eight features of their online course sites by the whole sample are shown in Table 2 ($N$ = 67).

**Table 2**

***Online Course Features: Sums of Rank Points and Rank Ordering for Sample (N=67)***

| Feature | ΣRankPoints | Rank Order |
|---|---|---|
| Course announcements and reminders from instructor | 383 | 1 |
| Course information documents (syllabus, schedules, outlines, grading procedures, etc.) | 369 | 2 |
| Information about assignments and instructions for completing them | 363 | 3 |
| Course instructional/content documents and materials (handouts, PowerPoint, Internet sites) | 333 | 4 |
| Personal and contact information for instructor | 287 | 5 |
| Direct linkage to Internet sites for assignments or independent study | 285 | 6 |
| Communication with classmates and instructor via asynchronous and synchronous discussion boards and virtual chat | 197 | 7 |
| E-mail linkage to classmates and instructor | 195 | 8 |

Analysis of the ranking data from the whole sample suggested four well-defined groups or "tiers," identified by major break points in the ΣRankPoint scores and the point ranges within and between each tier. As shown in Table 2, Tier 1 at the top of the

rankings comprised the top three course site features: (a) Course announcements and reminders from instructor, (b) Course information documents, and (c) Information about assignments. Common to all three features identified in this top tier is their function as creators of *structure and security* for learners. All three features offer guidance and confirmation to help keep students focused and on task as they progress through learning at a distance. This has been frequently identified in the distance education literature as a critical component in learner success.

Tier 2 of the online course features contained only the fourth-ranked item: Course instructional or content materials. A relatively high ranking of course *content* by adults was not surprising, given their typical affinity for relevance and real-world applications of new knowledge and skills. It was noteworthy that in these hybrid courses, the "structure" variables were ranked above the "content" variable. One contributor to this ranking order could be that in the hybrid environment, content was also addressed in the face-to-face meetings, making it unnecessary for the distance component to carry the entire burden of course content.

In Tier 3, two course features received nearly identical ΣRankPoint scores at ranks 5 and 6: Personal and contact information for instructor, and Direct linkage to Internet sites for assignments or study. These two features might be viewed as *convenience* features, offering rapid access to instructor assistance or to Internet content. This convenience was ranked as less important than both the structure/security and the content features of the online site.

The final Tier 4 also comprised two features with very similar ΣRankPoints at ranks 7 and 8: Communication with classmates and instructor, and Direct e-mail linkage to classmates and instructor. Based on their low ΣRankPoint scores, these two *communication* features were clearly ranked at the bottom of the set of course features. While it was somewhat surprising that these communication features were ranked at the bottom, given the emphasis on learner interaction and involvement in the distance learning literature, it is possible they were perceived as less important than other features in the hybrid environment where face-to-face communication and social opportunities were frequently available. It should be noted that in the subsequent analysis of 15 instructional goals for distance courses, facilitation of communication and interaction was ranked in the top five by this adult sample.

The rankings reported in Table 2 were generally highly consistent across the gender and learning strategy subgroups. However, when ranking differences between the entire group and a gender or learning strategy subgroup was defined as ± *two rank orders*, three important ranking differences were observed in the subgroups, both related to the ATLAS learning strategies.

The "course information" feature, ranked second by the entire sample group, exhibited an interesting pattern among the ATLAS groups. The Problem Solvers matched the full sample in ranking the provision of information such as course syllabus, outline, and requirements second among the course features. By contrast, the Navigators ranked this feature as number 1, while the Engagers gave it a rank of 4.

To go beyond comparison of the rankings assigned to the course information feature by the various ATLAS subgroups, a one-way ANOVA was used to compare the actual ΣRankPoint scores of the ATLAS subgroups on this feature. The $F$ ratio for this test was significant well beyond the .10 level chosen for this study ($F = 5.387$; $df = 2,64$;

$p$ = .007). Post hoc Tukey tests using harmonic means for unequal groups identified significant score differences between both Navigators and Problem Solvers ($p$ = .077) and particularly between Navigators and Engagers ($p$ = .008), but not between Problem Solvers and Engagers ($p$ = .525). Both the number 1 ranking of information about a course by Navigators and their significantly higher scoring of this feature than either Problem Solvers or Engagers support Navigators' critical concern and need for information about the functioning and "rules" for a course to enable their preferred strategy of charting an efficient and effective learning path for themselves. The Engagers' lower ranking than the other ATLAS groups may signal less interest in "rules of engagement" and their preference for discovering what opportunities are available to them and getting involved on their own terms and according to their own interests. Both these patterns are consistent with learning behaviors posited by the ATLAS instrument and underlying theory base.

The "information about assignments" feature was rated in third place by the whole sample. The ratings by the Navigators (rank = 4) and Problems Solvers (rank = 3) were highly similar to the sample and to each other. However, the ATLAS Engagers ranked this feature as number 1. ANOVA found no significant difference among the ΣRankPoints scores for the three strategy groups, but the emphasis it earned from the Engagers may reflect what ATLAS theory predicts as their tendency to determine if a learning activity is interesting and worthwhile to them before being willing to undertake it.

The course "content" feature—provision of relevant information in documents, computer slides, and Internet sites—was ranked in fourth place by the whole sample. It was given a third-place ranking by both Navigators and Engagers. In contrast, this feature was ranked lower at sixth place by the ATLAS Problem Solvers. While an ANOVA found no statistically significant differences among the ΣRankPoint scores of the three ATLAS groups on this feature, the lower ranking of content provision by Problem Solvers may reflect the preferred analytical strategy of seeking out and evaluating multiple inputs, ideas, and solutions for themselves posited for this group by the ATLAS theory base.

### *Course Instructional Goals*

The subjects were also asked to select from a list of 15 instructional goals the five goals they viewed as most important to them personally and to rank their selections in the order they believed them to contribute to their personal success in learning at a distance. The 15 goals and their rank ordering by the entire group of 67 subjects are shown in Table 3.

**Table 3**

***Course Instructional Goals: Sums of Rank Points and Ranking Order for Sample (N=67)***

| Goal | ΣRankPoints | Rank Order |
|---|---|---|
| Provide options for individualization/customization of learning | 122 | 1 |
| Facilitate self-directed learning | 118 | 2 |
| Provide variety in learning activities and assignments | 93 | 3 |
| Encourage and enable active communication and interaction among learners | 75 | 4 |
| Provide effective 2-way communication between learners and instructor | 72 | 5 |
| Provide opportunities for learners to expand their technology skills | 68 | 6 |
| Provide an introduction to the course and establish clear expectations | 62 | 7.5 |
| Provide worthwhile learning experiences in "live" meetings | 62 | 7.5 |
| Provide an anchor or "home base" for the course | 54 | 9 |
| Provide access to sufficient and relevant course content | 50 | 10.5 |
| Give learners a sense of "belonging" and involvement | 50 | 10.5 |
| Encourage and facilitate active & participatory learning | 48 | 12 |
| Give learners fast and effective technology and content assistance when requested | 45 | 13 |
| Give learners adequate feedback to enable them to evaluate and track their performance | 39 | 14 |
| Provide adequate guidance and structure to keep learners focused and on-task | 38 | 15 |

As shown in Table 3, based on ΣRankPoint scores, the five highest ranked instructional goals for the whole sample were (a) Provide options for individualization/customization of learning, (b) Facilitate self-directed learning, (c) Provide variety in learning activities and assignments, (d) Encourage and enable active communication and interaction among learners, and (e) Provide effective 2-way communication between learners and instructor. The first two goals were clearly identified by the group as their top choices by a 25-point score gap between them and the third-ranked goal. The top five goals, designated as Tier 1 for this analysis, were also generally highly ranked across the gender and ATLAS learning strategy groups. The notable exception was the very low ranking (rank = 13) given by the ATLAS Navigators to the number 5 goal (rank = 5 for both Problems Solvers and Engagers) of providing effective two-way communication between learners and instructor. While ANOVA did not find significant differences among the ΣRankPoint scores of the ATLAS groups on this instructional goal, the ranking patterns do show a strong difference for the Navigators. It is possible that once they established their understanding of the course objectives and their chosen path to attain them, the Navigators trusted their own strategies and felt little need for communication with the instructor expect for occasional verification of being on target.

The rankings of the remaining 10 instructional goals are also shown in Table 3. Fairly clear clusters are evident in the ΣRankPoint scores, creating four tiers below the top five groupings: Tier 2 ranks 6 and 7.5, Tier 3 ranks 9 and 10.5, Tier 4 ranks 12 and 13, and Tier 5 ranks 14 and 15. While there were many similarities in the rankings of the course goals in Tiers 2 through 5 across the gender and ATLAS subgroups, there were several noteworthy differences.

For the goal of providing adequate guidance and structure to keep learners focused and on task, ranked last at number 15 by the whole sample group and by both Navigators and Engagers, the ATLAS Problem Solvers gave a high priority ranking of 5.5. One-way ANOVA on the ΣRankPoint scores of the ATLAS subgroups on this feature revealed a significant difference among their scores ($F = 2.975$; $df = 2, 64$; $p = .058$). Post hoc Tukey tests using harmonic means for unequal groups identified significant score differences between Problem Solvers and Engagers ($p = .062$) but not between Problem Solvers and Navigators ($p = .182$), despite the identical rankings by Engagers and Navigators. For Problem Solvers, the high ranking of the guidance/structure goal may appear at first glance to contradict their natural preferences for exploration and alternatives as posited by ATLAS. However, it may represent recognition of their own tendency to stray off-task and a need for guidance in reaching required goals in a formal learning situation, particularly when considerable self-directed study is required by a hybrid distance learning environment.

The goal of providing an introduction to the course and establishing clear expectations received a mid-range ranking (rank = 7.5) for the whole group. It was ranked 10.5 by both Problem Solvers and Engagers, but considerably higher at number 4 by Navigators. Although an ANOVA indicated that the ΣRankPoint scores did not differ significantly among the ATLAS groups, the ranking emphasis on this instructional component by Navigators is consistent with their need for clear direction in applying their preferred learning strategy of developing a well-planned path to goal achievement.

The instructional goals of providing worthwhile learning experiences in face-to-face class meetings and providing access to sufficient and relevant course content received mid-range rankings of 7.5 and 10.5 respectively by the whole sample. However, the ranking patterns among the ATLAS strategy groups for both these goals showed marked variations, though significantly different ΣRankPoint scores were not found with ANOVA. Navigators ranked both goals higher (ranks = 6 and 8), while Problem Solvers ranked them lower (ranks = 10.5 and 13). These choices are within ATLAS expectations. The "no-nonsense" Navigators would likely demand structured information and outcomes. Problem Solvers, on the other hand, could be expected to have less concern for prescribed experiences and information and be willing to seek out alternative for themselves.

The instructional goal of providing opportunities to expand technology skills (rank = 6 for whole group) showed sharply different ranking patterns on the gender variable. This goal was ranked in the top five by males (rank = 4) but very low by females (rank = 13.5). An independent-sample *t* test with equal variance not assumed on the ΣRankPoint scores of the two gender subgroups confirmed a significant difference ($t = 2.510$; $df = 62.097$; $p = .015$). This gender pattern was expected and is supported in the literature, illustrating the relatively greater importance that males frequently place on technology.

For the goals of providing an anchor or "home base" for the course (rank = 9 for whole group) and giving learners a sense of "belonging" and involvement (rank = 10.5 for whole group), there were marked differences on the gender variable. While neither goal yielded significant gender differences in ΣRankPoint scores on an independent-sample *t* test, both did present sharp ranking differences between males and females. The males gave these goals low priority, ranking them at number 14 and 13 respectively, while the females ranked them among their high and middle priorities at number 5 and 8.5 respectively. This supports the finding of greater concerns about technology and maintaining personal relationships frequently reported in the literature among females in distance and technology-based learning.

The instructional goal of giving learners fast and effective assistance on request (rank = 13 for whole group) also brought out a marked contrast between males and females. Males ranked this goal as much more important (rank = 7) than did females (rank = 15). In addition, an independent-sample *t* test with equal variance not assumed on the ΣRankPoint scores of the two gender subgroups confirmed a significant difference ($t = 2.334$; $df = 57.456$; $p = .023$). These patterns perhaps indicate a gender difference in concern for maintaining perceived competence and adequacy of performance. The ATLAS Engagers also ranked this goal higher (rank = 7) than did Navigators (rank = 11) or Problem Solvers (rank = 15), perhaps revealing their awareness that those with this learning strategy can quickly distance themselves from tasks when they are unable to stay actively and personally involved without assistance. The last-place ranking given to this goal by Problem Solvers may reflect their comfort with exploring and seeking answers on their own, resulting in less feelings of need for assistance.

## Conclusions and Implications for Practice

This study supports several basic principles of adult learning. These have important implications for colleges and universities as they develop their capacity for recruiting and serving nontraditional adult learners with hybrid learning environments that contain online components. The adults in this study followed preference patterns already established by adult learning theory for traditional instructional environments, placing high value on learning options, variety, self-direction of their learning resources and pathways, relevant content they can apply to real-world needs, and the development of a sense of group membership. Thus, adults appear to value in online environments the same characteristics they prefer in face-to-face situations. This finding extends the validity of these principles from traditional environments to the e-learning situation, and is noteworthy for faculty who develop courses with online components in selecting effective instructional design strategies that will attract and retain adult learners.

The adults in this study also placed high value on effective two-way communication online with their classmates and instructor, and felt they benefited from frequent announcements and reminders from their instructor. This suggests that faculty working online should make themselves readily and visibly available to their adult students, encourage frequent communication, and apply "push" communication strategies such as e-mail "base-touches" and reminders to check online course sites for new information and instructions. It has been the experience of the author that "push" techniques are highly appreciated by adults and consistently receive praise in their evaluations of online instruction.

The support of the adults in this study for online learning based on communication, interaction, and involvement with classmates and instructor is consistent with the other research findings on student preferences in online learning. Among instructional design elements of distance environments, the research evidence has generally favored interactivity, communication, and "bonds" or "connectedness" as important features of online courses. Interactive components such as e-mentoring, e-coaching, live e-seminars and chat, games, and simulation have been identified as high-level instructional design strategies for online environments (van Dam, 2003). Active course elements such as chat, e-mail, discussion boards, personal Web pages, group activities, and learning communities have typically drawn positive responses from students learning at a distance (Ausburn, 2001; Roberson & Klotz, 2002; Roblyer & Wiencke, 2003; Woods & Ebersole, 2003). Based on the findings of this study, these same elements appear likely to find approval from adult learners in hybrid environments with online components.

The support for online interaction, communication, and a sense of belonging by the adults in this study suggests the importance of developing online environments that create a *learning community*. Arising from the communities of practice model in the workplace (Lave & Wenger, 1991; Wenger, 1998), learning communities are complex systems in which control is distributed among participants rather than centered in a hierarchical authority (Backroad Connections Pty Ltd., 2003). Supported and encouraged by the unique capabilities and 24/7/365 access of the Internet, online learning communities can be defined as groups of people, "connected via technology-mediated communication, who actively engage one another in collaborative learner-centered

activities to intentionally foster the creation of knowledge, while sharing a number of values and practices" (Ludwig-Hardman, 2003, p. iv). When these communities are created within a curriculum framework, such as an online course in a formal learning situation, they have been called *bounded learning communities* (Wilson, Ludwig-Hardman, Thornam, & Dunlap, 2004). These learning communities are created and limited by membership in a structured learning experience and function in "direct response to guidance provided by instructors . . . supported by a cumulative resource base" (Wilson et al, 2004, p. 1). These bounded learning communities are currently a favored e-learning model in higher education and have emerged as a strategic theme for e-learning and its marketing (Granitz & Greene, 2003) Thus, studies such as this one that contribute to their successful design and application are important as colleges and universities recruit the increasingly important adult market.

Also clearly supported in this study is the growing expectation and demand of adults for learning options, choices, and personalization of learning opportunities. The phenomenon known as *mass customization*, or service of "markets of one" (Stuart, 1994), is now a business imperative and is rapidly making its way into higher education (Ausburn, 2003; Pine, 1993; Stuart, 1994). Personalization and customization and their use to enhance customer service have been identified as strategic themes for successfully marketing online learning to adults and as key factors in the success of the highly competitive online for-profit universities such as University of Phoenix and Corinthian Colleges (Granitz & Green, 2003; Symonds, 2003). The expectation of adult learners for options and personal choices is strongly evidenced in the selection of top-ranked instructional goals by the participants in this study, and this should be noted by faculty in designing learning environments to serve this audience.

The results of this study indicate that in hybrid online instruction, as in more traditional environments, adult learners with different personal characteristics may differentially prefer and benefit from various instructional features and goals. In this adult sample, several specific differences were observed in the instructional design preferences and learning agendas of males and females and among the three ATLAS learning strategy groups. This suggests that faculty should be aware of individual learning needs among adults and should take advantage of the full range of instructional strategies that can be applied in the hybrid model to support the diverse learning needs and preferences of all their students.

An important contribution of this study is its additions to, and validation of, the emerging knowledge base about the ATLAS test of adult learning strategies by advancing it into the e-learning environment. Several instructional preferences were observed among Navigators, Problem Solvers, and Engagers in these hybrid courses, and these were consistent with the theory base of ATLAS and with the findings of other ATLAS research in more traditional environments. Thus, the learning strategy construct and the ATLAS instrument for assessing it may be emerging as highly useful tools for measuring learner differences and for using them to guide the design of online as well as traditional face-to-face learning experiences for adults. The author has found the online version of ATLAS (Conti, n.d.) a valuable tool for instrumented learning with adults and for guiding the instructional design of both face-to-face and online experiences to meet their needs and preferences.

As the nontraditional adult market continues to grow as a primary customer base for colleges and universities, instructors and administrators who understand adult learners' preferences and needs and who create learning opportunities that appeal to their unique characteristics can make critical contributions to the competitive edge of their institutions. This is significant at a time when the new digital Darwinism can overwhelm those without this edge.

## References


Ausburn, L. J. (2001, July). *Big bang for small bucks: Making distance learning work for adult educators.* Paper presented at the Syllabus Conference on Technology in Higher Education, Santa Clara, CA.

Ausburn, L. J. (2003). Beyond the inflection point: The softer side of learning's new digital landscape. *Scholar-Practitioner Quarterly, 3*(1), 79-97.

Ausburn, L. J., & Ausburn, F. (1978). Cognitive styles: Some information and implications for instructional design. *Educational Communication and Technology, 26*, 337-354.

Ausburn, L. J., & Ausburn, F. B. (2003). A comparison of simultaneous vs. sequential presentation of images in a visual location task to learners with visual and non-visual perceptual styles: A study of supplantational instructional design. *OATE Journal, 7,* 1-20.

Australian National Training Authority. (2003, July 29). *What are the conditions for and characteristics of effective online learning communities? Australian Flexible Learning Framework Quick Guides series* (Version 1.00). Retrieved June 10, 2004, from http://www.flexiblelearning.net.au/guides/community.pdf

Barrett, E., & Lally, V. (1999). Gender differences in an on-line learning environment. *Journal of Computer Assisted Learning, 15*(1), 48-60.

Blake, R. R., & Mouton, J. S. (1972). What is instrumented learning? Part I—Learning instruments. *Industrial Training International, 7*(4), 113-116.

Bleed, R. (2001, January-February). A hybrid campus for the new millennium. *Educause*. Retrieved October 15, 2003, from http://www.educause.edu/ir/library/pdf/erm0110.pdf

Brookfield, S. (1986). *Understanding and facilitating adult learning.* San Francisco: Jossey-Bass.

Cappelli, G. (2003). E-learning in the postsecondary education market: A view from Wall Street. In M.S. Pittinsky (Ed.), *The wired tower: Perspectives on the impact of the Internet on higher education* (pp. 41-63). Upper Saddle River, NJ: Prentice Hall.

Conti, G. J. (n.d.). A*ssessing* T*he* L*earning* S*trategies of* A*dult* S. Retrieved July 8, 2004, from http://www.conti-creations.com/atlas.htm

Conti, G. J., & Kolody, R. C. (1995). The use of learning strategies: An international perspective. In *Proceedings of the 36th Annual Adult Education Research Conference* (pp.77-82). Edmonton, Canada: University of Alberta.

Conti, G. J., & Kolody, R. C. (1999). *Guide for using ATLAS.* Stillwater, Oklahoma: Oklahoma State University.

Conti, G. J., & Kolody, R. C. (2004). Guidelines for selecting methods and techniques. In M. W. Galbraith (Ed.), *Adult learning methods: A guide for effective instruction* (3rd ed., pp. 181-192 ). Malabar, FL: Krieger.

EducationforAdults.com. (2003). *Adults are headed back to school to get their degrees* (Press Release). Retrieved August 28, 2004, from www.edudirectories.com/press/press74.html

Fellenz, R. A., & Conti, G. J. (1989). *Learning and reality: Reflections on trends in adult learning*. (Information Services No. 336). Columbus, OH: ERIC Clearninghouse on Adult, Career, and Vocational Education. (ERIC Document Reproduction Service No. ED315663)

Fellenz, R. A., & Conti, G. J. (1993). *Self-knowledge inventory of lifelong learning strategies (SKILLS) manual.* Bozeman, MT: Center for Adult Learning Research.

Granitz, N., & Greene, C. (2003). Applying e-marketing strategies to online distance learning. *Journal of Marketing Education, 25*(1), 16-30.

Horn, D. (1994). Distance education: Is interactivity compromised? *Performance and Instruction, 33*(9), 12-15.

Horton, W. (2000). *Designing Web-based training: How to teach anyone anything anywhere anytime.* New York: Wiley.

Horton, W., & Horton, K. (2003). *E-learning tools and technologies.* New York: Wiley.

Kimbrough, D. R. (1999). On-line "chatroom" tutorials—An unusual gender bias in computer use. *Journal of Science Education and Technology, 8*(3), 227-234.

Knowles, M. (1980). *The modern practice of adult education: From pedagogy to androgogy* (2nd ed.). Englewood Cliffs, NJ: Prentice Hall/Cambridge.

Knowles, M. (1984). *Androgogy in action: Applying modern principles of adult learning.* San Francisco: Jossey-Bass.

Knowles, M., Holton, E. F., III, & Swanson, R. A. (1998). *The adult learner* (5th ed.). Houston, TX: Gulf.

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development.* Englewood Cliffs, NJ: Prentice Hall.

Kramer, C. (2002). *Success in on-line learning.* New York: Delmar.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation.* Cambridge, England: Cambridge University Press.

Levine, A. (2003). Higher education: A revolution externally, evolution internally. In M.S. Pittinsky (Ed.), *The wired tower: Perspectives on the impact of the Internet on higher education* (pp. 13-39). Upper Saddle River, NJ: Prentice Hall.

Ludwig-Hardman, S. (2003). *Case study: Instructional design strategies that contribute to the development of online learning community.* Unpublished doctoral dissertation, University of Colorado, Denver.

Merriam, S. B., & Cafarella, R. S. (1999). *Learning in adulthood: A comprehensive guide.* San Francisco: Jossey-Bass.

Mouton, J. S., & Blake, R. R. (1974). *Instrumented team learning: A behavioral approach to student-centered learning.* Austin, TX: Scientific Methods.

Mouton, J. S., & Blake, R. R. (1984). Principles and designs for enhanced learning. *Training and Development Journal, 38*(12), 60-63.

Munday, D. R. (2002). *Effects of learning strategy awareness on learning, learners, and instructor.* Unpublished doctoral dissertation, Oklahoma State University, Stillwater.

Munday, W. S. (2002). *Identifying the impact of personal counseling regarding learning strategies of graduate level business students at Webster University McConnell AFB, Kansas.* Unpublished doctoral dissertation, Oklahoma State University, Stillwater.

Pine, B. J., II. (1993). *Mass customization: The new frontier in business competition.* Boston: Harvard Business School Press.

Proost, K, & Elen, J. (1997). Effects of gender on perceptions of and preference for telematic learning environments. *Journal of Research on Computing in Education, 29*(4), 370-385.

Roberson, T. J., & Klotz, J. (2002, Winter). How can instructors and administrators fill the missing link in online instruction? *Online Journal of Distance Learning Administration, 5*(4). Retrieved March 31, 2003, from http://www.westga.edu/~distance/ojdla/winter54/roberson54.htm

Roblyer, M. D., & Wiencke, W. R. (2003). Design and use of a rubric to assess and encourage interactive qualities in distance courses. *American Journal of Distance Education, 17*(2), 77-98.

Shea, R. H. (2002, October 28). E-learning today. *U.S. News & World Report,* 54-56.

Smith, R. M. (1982). *Learning how to learn: Applied theory for adults.* Englewood Cliffs, NJ: Prentice Hall.

Stuart, A. (1994, October 15). All for one. *CIO Magazine*. Retrieved November 30, 2000, from http://www.cio.com/archive/101594/mass_content.html?printversion=yes

Sullivan, P. (2001). Gender differences and the online classroom: Male and female college students evaluate their experiences. *Community College Journal of Research and Practice, 25*(10), 805-818.

Symonds, W. C. (2003, November 17). Cash-cow universities. *BusinessWeek,* 71-74.

Tough, A. (1977). *Recent learning efforts: Recent research and future directions.* Toronto, Ontario, Canada: Ontario Institute for Studies in Education.

Transforming the academic enterprise: A conversation with Graham Spanier. (2003, August 1). *Syllabus Magazine, 17*(1), 11-14.

van Dam, N. (2003). *The e-learning fieldbook.* New York: McGraw-Hill.

Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity.* Cambridge, England: Cambridge University Press.

Wilson, B. G., Ludwig-Hardman, S., Thornam, C. L., & Dunlap, J. C. (2004, April). *Bounded community: Designing and facilitating learning communities in formal courses.* Paper presented at the meeting of the American Educational Research Association, San Diego, CA.

Wolcott, L. L. (1996). Distant, but not disconnected: A learner-centered approach to distance education. *Techtrends, 41*(4), 23-27.

Woods, R., & Ebersole, S. (2003).Using non-subject-matter-specific discussion boards to build connectedness in online learning. *American Journal of Distance Education, 17*(2), 99-118.