

THE STABILITY OF, AND RELATIONSHIP BETWEEN, LEARNING ORIENTATION AND LEARNING STYLE

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ABSTRACT

The stability of learning orientation, as formulated by Knowles, and of learning style, as conceptualised by Kolb, was investigated. Attempts were also made to determine whether a relationship exists between orientation and style. The results showed that significant changes in learning style occurred. Under acceptable task conditions an andragogical orientation dominated whilst under unacceptable task conditions significant shifts to a pedagogical orientation were discerned. Although learning style changed significantly, no significant relationship between learning orientation and learning style could be found. Theoretical and practical implications of the findings are briefly discussed.

OPSOMMING

Die stabiliteit van leeroriëntasie, soos deur Knowles geformuleer, en van leerstyl, soos deur Kolb gekonseptualiseer, word in die studie ondersoek. Daar is ook 'n poging aangewend om te bepaal of daar 'n verband tussen oriëntasie en styl is. Die resultate dui daarop dat leeroriëntasie betekenisvol verander het. By 'n aanvaarbare leer-taak was 'n andragogiese oriëntasie dominant, terwyl 'n betekenisvolle verandering na 'n pedagogiese oriëntasie by 'n onaanvaarbare leertaak waargeneem is. Ofskoon leerstyl ook betekenisvol verander het, kon 'n beduidende verband nie tussen leeroriëntasie en leerstyl gevind word nie. Die teoretiese en praktiese implikasies van die bevindinge word kortliks bespreek.

Since the almost incriminating remarks of Campbell (1971) there has been some noticeable progress in research in the training field. However, emphasis seems to have been placed on training and learning as processes rather than on the content matter of these two phenomena.

Furthermore there has been a tendency amongst researchers to focus their efforts on theory borrowing rather than on theory building. In this regard elements of information theory, behavioural counseling, developmental psychology, personality theory, managerial and cognitive psychology are particularly evident in training and learning research.

In developmental psychology advances in descriptions of adult life and career stages have contributed to an active exploration of the concept "adult learning" or andragogy. As Knowles (1984 pp. 7-8) puts it: "By 1970 there was a substantial enough body of knowledge about adult learners and their learning to warrant attempts to organise it into a systematic framework of assumptions, principles and strategies". The assumptions and principles of adult learning are inferred from the characteristics of adults and translated into conditions which are thought to facilitate the training of and learning by adults. Although the adult as learner is extensively analysed and described it suffices to point out that the independence and the experience repertoire of adults are viewed as key conditions for effective learning in the andragogical model.

In the literature the extent to which generalization can be made about the conditions for adult learning, has almost gone undebated and some ambiguity seems to exist in this regard. For example, Knowles (1984) is of the opinion that there are

situations in which adults are dependent and where their experience is of little value. Cheren (cited in Knowles, 1984) however, concluded from his study that the andragogical model was congruent with the natural way in which adults learn, whilst Bowers (cited in Knowles, 1984) found that students generally preferred andragogical methods of teaching.

In this study it is suggested that much the same argument regarding the generalizability of the andragogical model (i.e. the learning orientation of adults) applies to learning styles. The concept of learning styles originated in cognitive psychology and later came to be viewed as a personality trait. Lippitt (1983) claims that learning style refers to personality as well as cognition, whilst Entwistle and Ramsden (1983) say: "The stability and pervasiveness of cognitive styles across diverse spheres of behaviour suggests deeper roots in personality structure than might at first glance be implied" (p. 62). Squires (1981) again proposes that the dividing line between cognitive style and personality type research is unclear.

Little variation exists in the literature as to the meaning of "learning style" and most definitions are of the following nature: learning style denotes consistencies in the way in which individuals process information and solve problems.

The linking of learning styles to personality as well as the element of consistency contained in definitions of learning style, suggest that learning style is a stable characteristic across different kinds of situations. In this regard Squires (1981) writes: "The extent to which such processes vary with task, stimulus conditions, sensory modality or environmental factors, the paradigm is weakened and begins to lose its simplifying, organising, power" (p. 3). The stability of learning styles is also supported by Cashdon and Lee (1971) and Entwistle and Lamsden (1983). Kolb (1984) again suggests that individuals rely on a particular learning style, but acknowledges that flexibility between styles results from increased maturity. It is

suggested here that effective learning, like adjustment, requires flexibility – the ability to generate alternative perspectives. The contra situation would also obtain: rigidity or inflexibility would lead to ineffective learning and maladjustment.

In this study then the stability associated with both learning orientation and learning style is questioned, and an attempt is made to determine whether the learning task itself could be offered as an explanation in this regard. The idea of different types of learning and learning tasks is not novel in training research. Gagne (1977) for example differentiated between cognitive learning, rote learning, discovery learning and others. What is suggested here, however, is that the perceived presence or absence of motivation intrinsic to the learning task may account for possible changes in learning orientation and learning style.

As a further step in this study, the possibility of a relationship between learning orientation and learning style is investigated. It is argued that an andragogical orientation will be associated with learning styles different from that of a pedagogical orientation. Some evidence for this position derives from both learning orientation and learning style theory. Briefly stated, an andragogical orientation applies to learning which is self-directed, largely independent and aided by a spontaneous willingness to toy with ideas and to relate new information to a cognitive structure formed on the basis of previous experience. In contrast other-directedness, dependency, the bold acceptance of ideas and a preference for single-solution situations, are assumed in the pedagogical model.

Fundamental to Kolb's learning style theory (Kolb, 1984) are the concepts of prehension and transformation. The former is conceived as a dimension with two dialectically opposed modes (apprehension and comprehension) of *grasping* information. The latter again represents a dimension with two dialectically opposed modes (intention and extension) of *transforming*, that which was grasped. On the basis of the transformation dimension it is suggested that the andragogical and pedagogical models outlined above, respectively fit the intentional and extensional modes of learning.

Kolb further suggests that a combination of the prehension and transformation dimensions produces four learning styles (divergers, assimilators, convergers and accommodators) and that a preferred style results from the way in which the two sets of conflict, inherent in the dialectically opposed modes, are resolved. Kolb describes the diverger as being able to view situations from different perspectives and to generate alternative

ideas. The assimilator is seen as being able to absorb disparate observations into an integrated explanation. As is the case with the intentional mode, the characteristics associated with these two learning types, appear to be congruent with the characteristics of the adult learner.

The converger is said to perform best in clear cut one-answer situations, whilst the accommodator relies on others in problem solving situations. As is the case with the extensional mode, the characteristic of these two learning types seem to match those of the pedagogical learning orientation.

The aims of this study can be summarised as follows:

- to determine empirically whether learning orientation, as formulated by Knowles, and learning style, as conceptualised by Kolb, are subject to change depending on the motivational acceptability of the learning task
- to determine empirically whether a relationship exists between learning orientation and learning style.

METHOD

Hypotheses

To achieve the abovementioned aims, the following null hypotheses were formulated:

1. the proportion of learners who exhibit a change in learning orientation, will not be significant
2. the proportion of learners adopting a particular learning orientation will not differ significantly under perceived acceptable and perceived unacceptable learning task conditions
3. the proportions of learners who exhibit a change in learning style, will not be significant
4. the proportions of learners adopting a particular learning style will not differ significantly under perceived acceptable and perceived unacceptable learning task conditions
5. when the learning task is perceived to be acceptable the proportion of learners adopting a particular learning orientation, will not differ significantly with regard to learning style
6. when the learning task is perceived to be unacceptable, the proportions of learners adopting a particular learning orientation, will not differ significantly with regard to learning style.

TABLE 1
CORRELATION OF ITEMS IN THE LEARNING ORIENTATION QUESTIONNAIRE
WITH TOTAL QUESTIONNAIRE SCORE

Item	r
1	0,71
2	0,58
3	0,50
4	0,59
5	0,56
6	0,61
7	0,57

Instruments and conditions

For the purposes of uniformity in research an attempt was made to use existing instruments for the measuring of learning orientation and learning style. However, because of the unavailability of a standardised instrument for the measurement of learning orientation, the "informal" questionnaire suggested by Knowles (1984) was used. On the basis of an item analysis, items 3,4 and 8 of the Knowles' questionnaire were removed, resulting in a reliability coefficient of $r = .69$. The correlation coefficients of the remaining items (renumbered) with the total questionnaire score are shown in Table 1. As far as learning style is concerned, the Learning Style Inventory developed by Kolb was used. The condition of a perceived acceptable learning task was introduced by having the participants in the study identify a university course (for example, English) which best fitted the requirements of intrinsic motivation suggested by Lawler and Hall (as cited in Cook, Hepworth, Wall, & Warr, 1981). The condition of a perceived unacceptable learn-

ing task was obtained on a later occasion by having participants identifying a course which least fitted the requirements of intrinsic task motivation.

Subjects

Second year ($n = 81$) and third year ($n = 40$) full-time university students participated in the study ($N = 121$).

Design

After having identified a course of which the content was perceived to be acceptable, the participants were requested, with the individually identified course in view, to respond to the learning orientation and learning style inventories.

Three to four weeks later the participants were requested to respond to the same inventories, but with the individually identified course in view of which the content were considered to be unacceptable.

TABLE 2
FREQUENCIES OBTAINED FROM THE LEARNING ORIENTATION QUESTIONNAIRE

Conditions/change	Learning orientation		Total
	Andragogical	Pedagogical	
Acceptable task content	91	19	110
Unacceptable task content	27	83	110
Learning orientation unchanged	20	12	32
Learning orientation changed	7	71	78

NOTE Totals less than $N = 121$ since participants with an "undecided" score were not included.

RESULTS

The results obtained from the learning orientation questionnaire are summarised in Table 2.

From the table it can be seen that 78 (70,91%) of the participants changed their learning orientation when task content changed from acceptable to unacceptable. When assuming that learning orientation ought to be stable, the proportion of participants who changed their learning orientation was found to be significant $\chi^2 (1, N = 110) = 74,52, p < ,05$. As a consequence the null hypothesis of no difference (Hypothesis 1) is rejected.

Table 2 also shows that 91 (82,73%) of the participants adopted an andragogical orientation when task content was perceived to be acceptable and that only 27 (24,5%) could be classified as being andragogical when task content was perceived to be unacceptable. It was found that learning orientation differed significantly under perceived acceptable and unacceptable task conditions $\chi^2 (1, N = 110) = 74,88, p < ,05$. The null hypothesis of no difference (Hypothesis 2) is thus rejected.

TABLE 3
FREQUENCIES OBTAINED FROM THE LEARNING STYLE INVENTORY

Conditions/change	Learning style				Total
	Diverger	Assimilator	Converger	Accommodator	
Acceptable task content	34	42	20	25	121
Unacceptable task content	48	41	19	13	121
Learning style unchanged	19	19	9	6	53
Learning style changed	29	22	10	7	68

The results stemming from the Learning Style Inventory are shown in Table 3.

It can be seen that 68 (56,20%) of the participants changed with regard to learning style when task content changed from acceptable to unacceptable. On the assumption that learning style ought to be stable, the proportion of participants who changed their learning style was found to be significant $\chi^2(3, N = 121) = 63,06, p < ,05$. As a consequence the null hypothesis of no difference (Hypothesis 4) is rejected.

Table 3 indicates the distribution of participants between the learning styles when task content was perceived to be acceptable and unacceptable. It was found that learning style did not differ significantly under perceived acceptable and unacceptable task conditions $\chi^2(3, N = 121) = 6,22, p > ,05$. The null hypothesis of no difference (Hypothesis 4) is thus not rejected.

The possible directional effect of task content was further investigated by analysing the learning styles of participants who changed style and those who did not. For this purpose it was assumed that the obtained distribution between styles under acceptable task condition (as shown in Table 3) would prevail. The distribution between styles of those participants who changed their learning styles was found to differ significantly from the expected distribution $\chi^2(3, N = 121) = 8,89, p < ,05$. However, the change was away from the converger and accommodation styles towards the diverger and assimilator styles, that is in the opposite direction which was expected.

The distribution between styles of those who did not change their learning styles was found not to differ significantly from the expected distribution $\chi^2(3, N = 121) = 3,65, p > ,05$. Although not significant, the tendency, contrary to expectation, was to maintain diverger and assimilator styles.

TABLE 4
LEARNING ORIENTATION AND LEARNING STYLE FREQUENCIES

Condition	Learning orientation	Learning style				Total
		Diverger	Assimilator	Converger	Accommodator	
Acceptable task content	Andragogical	22	34	15	20	91
	Pedagogical	7	4	3	5	19
Unacceptable task content	Andragogical	14	7	3	2	26
	Pedagogical	30	31	13	10	84

NOTE: Total less than $N = 121$ since participants with an "undecided" score on the learning orientation questionnaire are not included.

Table 4 shows the results pertaining to learning orientation and learning style when task content is held constant. It was found that participants adopting a particular learning orientation did not differ significantly on learning style $\chi^2(3, N = 110) = 1,92, p > ,05$ under acceptable task conditions. A similar result was obtained when task conditions were perceived to be unacceptable $\chi^2(3, N = 110) = 2,76, p > ,05$. As a consequence the null hypotheses of no difference (Hypothesis 5 and 6) are not rejected.

DISCUSSION AND CONCLUSION

The results of this study strongly suggest that learning orientation, in terms of andragogical and pedagogical formulations, and learning styles, in terms of the Kolb model, are susceptible to change. There is sufficient evidence to suggest that learners will adopt an andragogical orientation if they perceive their learning task to be acceptable, whereas an unacceptable task would lead to the favouring of a pedagogical orientation.

In the case of learning styles there appears to be a tendency for learners to change to or to maintain diverger and assimilator learning styles. This finding is contrary to expectations and theoretically difficult to explain. Methodologically, however, it could be argued that the Learning Style Inventory contains some bias in that divergent and assimilating responses are socially more acceptable than convergent and accommodating

responses. This bias may have been amplified in the study where all participants were university students.

In view of the abovementioned response tendency, the failure to demonstrate a relationship between learning orientation and learning style is understandable yet not quite acceptable. The reason for this is that both concepts describe the learning process in much the same terms. Rather than concluding that the concepts are unrelated, it seems feasible to postpone judgement in this regard.

In terms of theoretical considerations the results of the study suggest that stability in learning orientation and in learning style can only be assumed if certain conditions, such as task content considerations, prevail. Variability in learning orientation and learning style should also be taken into account when standardising instruments of measurement. It is suggested, for example, that the unsatisfactory reliability of the Learning Style Inventory, reported by Freedman and Stumpf (1980) may be the result of dissimilar conditions rather than an instrument of questionable value.

In terms of training considerations, the results of the study suggest that the matching of teaching orientation with learning orientation, if that is to be achieved, need not be the sole responsibility of trainers. Learners too, have the ability to adapt to their trainers.

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