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LECTURERS
17 August 1992

TEACHER RECEPTIVITY TO SYSTEM-WIDE CHANGE IN THE
IMPLEMENTATION STAGE

ABSTRACT

This study is concerned with the receptivity of Western Australian secondary school teachers towards a system-wide educational change, the Unit Curriculum system. In any system-wide educational change that involves the classroom, teachers' receptivity towards the change is an important determinant of its successful implementation. It is important for educational decision makers to know what variables affect receptivity so that new proposals can be tailored to achieve the best chance of successful implementation. It is proposed that there are fundamental variables common to all system-wide changes and these are included in a model of receptivity developed from previous research. This paper reports the results of an empirical study using data from 480 teachers where 56 percent of the variance in attitudes towards the Unit Curriculum System is predicted from four fundamental variables. These variables are non-monetary cost benefit to the teachers, perceived participation in the change decisions relating to the school and the classroom, perceived support for the change from Principals and senior teachers, and feelings towards the previous educational system.
This paper reports an empirical study concerned with the receptivity of teachers in Western Australia towards a system-wide educational change in its implementation stage, the Unit Curriculum system. This system replaced the modified Achievement Certificate System for Year 8 (13 year olds) in 1988 to Year 10 (15 year olds) in 1990. A model of teacher receptivity, designed to apply to any system-wide educational change in its implementation stage, was reported by Waugh and Punch (1985) and developed on the assumption that there are fundamental generalisations common to all such changes. Using data on teacher receptivity to the Certificate of Secondary Education system collected in 1980, they found that receptivity was related mainly to cost appraisal, practicality, concerns about important issues and feelings towards the previous educational system, and that these variables accounted for 43 per cent of the variance in attitudes towards the Certificate of Secondary Education system. While the Certificate of Secondary Education was implemented by a centrally controlled authority at a time when teachers were in favour of the main aspects of that change, the Unit Curriculum System, in the view of many secondary school teachers, was implemented by government edict without proper trials, resources or adequate consultation with teachers. This study of receptivity towards the Unit Curriculum system therefore provides a test of the model under quite different circumstances from that used in previous studies and it uses a revised and updated model with improvements to the measures of the variables within the model.

In Western Australia, the Unit Curriculum System allows students to choose units of study appropriate to their needs, interests and abilities. Units are studied for about 40 hours and cover core areas like English, Mathematics, Science and Social Studies as well as many other areas such as Art, Drama, Media, Physical Education, Music and Performing Arts. Students can pursue any area of study in depth providing they maintain some breadth of study according to rules laid down by the schools and providing the schools have the resources. Schools follow common syllabuses with common assessment procedures that allowed up to 20 per cent variation in their objectives. This system stands in contrast to the system that it replaced where all students studied English, Mathematics, Science and Social Studies for about 200 minutes a week throughout the academic year and then pursued various optional subjects offered by the schools for about 80 minutes per week. Schools were
responsible for assessments which were moderated to ensure comparability of
grades state-wide for only the core subjects.

The most important changes of the Unit Curriculum System involved the
syllabus units of 40 hours rather than year long courses; the introduction
of seven equal status syllabus components (English and Communication,
Mathematics, Social Studies, Science and Technology, Practical Arts and
Crafts, Personal and Vocational Education, and the Performing Arts) rather
than the core plus option system; the concept of studying a series of
units in a particular area in depth according to needs, abilities,
interests and school resources; and having comparability of assessments of
student achievement through [guidelines] rather than through external
moderators for the core subjects. By July 1992 when all the data for this
study were collected, teachers had been involved with the Unit Curriculum

System for more than four years and hence their attitudes, feelings and
behaviour intentions would have stabilised. There is a need to study
teacher receptivity to system-wide changes in order to find out how best to
implement changes so that educational decision makers can better provide
for students and teachers. While changes can be divided into three stages
such as initiation, implementation and routinization, it is in the
implementation stage that many changes falter. In a review of the politics
of educational change, James (1991:201) has stated that there is a need
for:

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the continuation of implementation studies. The task here
will
be to refine what is known so that it will be possible to
engage
local initiative more constructively. A highly refined stream
of
good advice needs to reach key actors at the state level.

This is particularly relevant in Western Australia where education is
centrally controlled by a state authority in regards to certification of
student achievement. Teachers have to implement system-wide changes and
it is important that the educational decision makers understand how
teachers form their receptivity to the change. If we can find out the
main variables influencing receptivity to change, then we can provide
advice to the decision makers on how best to tailor their proposals so that
teachers will implement changes for the betterment of society. This
study is in line with these comments and builds on previous research on
system-wide change in the implementation stage. The study refines the
variables used by Waugh and Punch (1985), combines aspects of some
variables and uses recent research on change to study teacher receptivity
to the Unit Curriculum.
THE MODEL

The model used in this study is set out in the figure below. The dependent variable is receptivity and is measured in three aspects: attitude, overall feelings and behaviour intentions. Attitude is defined as a general favourable or unfavourable stance towards the Unit Curriculum as a whole. This predisposes the teacher towards a general evaluation of whether the Unit Curriculum serves a worthwhile purpose. Overall feelings are defined as an opinion about the Unit Curriculum as a whole without any strong orientation to action measured on a continuum from oppose through dislike to support and applaud. Behaviour intentions are defined as a direct intention to behave and communicate with others about the Unit Curriculum in the near future on a continuum from praise through support to oppose and resist.

The Unit Curriculum has been in operation in government schools for over four years and it is assumed that while teacher receptivity to it has stabilised receptivity will vary between teachers within and amongst schools. This variation is seen as being due to the fundamental variables of prior feelings towards the previous system; personal teacher variables relating to the change such as a non-monetary cost benefit and concerns about important issues of the change; teacher/student variables such as practicality in the classroom; teacher/school variables such as participation in decisions affecting the school and the classroom in relation to the change, alleviation of concerns relating to the change through school support and perceived other teacher and senior teacher support for the change, and possibly to a number of personal variables which are not included for study.

MODEL OF TEACHER RECEPTIVITY TO THE UNIT CURRICULUM

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Dependent Variables</th>
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<tbody>
<tr>
<td>Prior Feelings</td>
<td>Attitude</td>
</tr>
<tr>
<td>Personal Cost Benefit</td>
<td></td>
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<tr>
<td>Participation</td>
<td></td>
</tr>
<tr>
<td>Practicality</td>
<td></td>
</tr>
</tbody>
</table>

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towards Concerns Alleviation of Overall Feelings previous concerns Behaviour Intentions system Perceived support
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THE DATA

The questionnaire was developed from previous research in the area of change (Waugh, 1983; Waugh and Punch, 1985; Conley, 1991 and Giacquinta, 1973). Its pre-testing, development and analysis was carried out with data from 480 teachers at 17 government secondary schools in the Perth metropolitan area. The analysis of the item data followed the seven criteria outlined by Wright and Masters (1981) in order to obtain valid measures of each of the variables in the model. These criteria involve: firstly, an assessment of the extent to which each item functions as intended; secondly, an estimation of the relative position or calibration of each valid item along the dimension which the items define; thirdly, an assessment of the extent to which each person’s responses form a valid response pattern; fourthly, an estimation of the position on the dimension defined by the valid items for each person whose pattern of responses is valid; fifthly, the person measures and the item calibrations must fit together on a common continuum defined by the items, and they must share a constant interval from one end of the continuum to the other so that their numerical values mark off the continuum in a linear way; sixthly, these numerical values should be accompanied by standard errors which indicate how precisely the positions of persons and items on the continuum are estimated; and seventhly, the results must be objective enough to support some useful generalisations so that the items remain more or less the same in their function and meaning from person to person and group to group.

While existing scales were used for the variables, where new research evidence was available, some new items were developed as in the case of the variable, participation (Conley, 1991). All the variables were pre-tested, including those with existing and new items, before being used in the main data collection. The items and variables of the main body of data were analysed to ensure that the seven criteria mentioned above were satisfied and this meant that some items had to be discarded. For the analysis, the rating response measurement model (Andrich, 1978), a generalisation of Rasch’s (1960) simple logistic measurement model was used with a computer programme called Titan developed by Adams and Khoo (1991).
The analysis produced scales for each variable that exhibited sound psychometric properties and showed that all the scales represent unidimensional measures of the variables.

The questionnaire contained four sections. The first contained three measures of the dependent variable receptivity: attitude, overall feelings and behaviour intentions. While attitude was measured with a ten item semantic differential in line with research reported by Osgood, Suci and Tannebaum (1970), only seven items were retained after the analysis. Overall feelings were measured with an eight item Likert scale using four response categories without a neutral category because Dubois and Burns (1975) reported that many respondents use a neutral category when they do not hold neutral feelings. Behaviour intentions were measured with a six item Likert scale with four response categories on a continuum from praise through support to oppose and resist in relation to behaviour and communication with others.

The second section contained scales relating to two personal teacher variables: non-monetary cost benefit of the change and concern about important issues related to the change. Cost benefit (Doyle and Ponder, 1977-78) is conceptualised as a ratio between the amount of return and the amount of investment for the teacher in terms of benefit for the teacher and the student. It was revised by Waugh (1983), further revised and adapted for this study and is measured by a five item scale with four response categories. Concern is measuring the important issues of the Unit Curriculum as seen by teachers and it uses a five item Likert scale with four response categories.

The third section contained teacher views on how practical the Unit Curriculum was in the classroom, as defined by Doyle and Ponder (1977-78), and further revised for this study. It was measured with a seven item Likert scale which was reduced to five items after analysis. The fourth section contained variables relating to the interaction between the teacher and the school such as participation, the alleviation of concerns and perceived support for the Unit Curriculum. Participation was defined along the lines of recent research performed by Conley (1991) who found that teachers examined such aspects as authority versus influence, actual outcomes versus expected outcomes, and classroom decisions versus administrative decisions. It was measured with a seven item Likert scale which was reduced to five items after analysis. Teachers' concerns can be alleviated through such things as meetings, teacher friends, senior supportive teachers and so on (Giacquinta, 1973; Waugh and Punch, 1987).
In this study, it was measured with a seven item Likert scale which was reduced to five items after analysis. Support for the Unit Curriculum from the Principal, senior teachers and other teachers, as perceived by the teachers, was measured by a five item Likert scale which was reduced to four items after analysis.

The data were collected from a sample of 480 secondary school teachers who were teaching the Unit Curriculum in 1992 at 17 government schools in Perth, Western Australia. The schools were selected from 54 schools to ensure a wide variation in teacher attitudes across a wide variation of implementation of the Unit Curriculum in schools. Only two schools declined to participate. The sample is representative of teachers of the Unit Curriculum in government secondary schools in Perth during 1992.

6 THE RESULTS

The first result to note is that there were some strong and widespread objections to the Unit Curriculum system. Of 450 teachers, 190 (42 per cent) perceived the Unit Curriculum as “worthless” rather than “valuable”; 307 (68 per cent) perceived it as “restrictive” rather than “permissive”; and 264 (59 per cent) perceived it as “ineffective” rather than “effective”. With regard to behaviour intentions, while 230 (50 per cent) of 455 teachers indicated that in their behaviour and communication with others, they would probably oppose the Unit Curriculum up to 1994 only 156 (34 per cent) indicated that they would actively and openly resist the Unit Curriculum.

It is interesting that the variable overall feelings paints a slightly different picture whereby only 126 (28 per cent) of 448 teachers indicated that they had opposed the Unit Curriculum up till now (1992) and 194 (44 per cent) indicated that they had supported the system up till now. These data reflect a commonly written response on many questionnaires that the Unit Curriculum was fine in theory but it was implemented without adequate consultation with teachers, that insufficient resources were provided for its full and proper implementation, and that the trials were not evaluated properly. They also reflect a common feeling conveyed to the researchers, particularly by English, Mathematics and Science teachers, that the course outlines were restrictive and detrimental to learning in their subject, and that there was inadequate development of skills by the students. This occurred in part because there was a rush to teach and assess achievement in the time available for the units. Moreover, there was a belief that the students were not able to build on knowledge and skills from previous units. In contrast to this there was wide and, at times, strong support from teachers of courses who believed that their subjects were given higher or equal status with English, Mathematics,
Science and Social Studies and that they were able to adapt the courses to suit their subject, their teaching style and their students.

The zero order correlations between the variables are shown in the table below. The three aspects of receptivity correlate positively and to a similar degree with the other variables in the model and, although the regression analysis to follow will differentiate between the three aspects of receptivity, the interpretation of the zero order correlations considers receptivity in general. Receptivity correlates positively and moderately well with non-monetary cost benefit, practicality in the classroom, participation in school and classroom decisions, school support (alleviation of concerns), and with feelings towards the previous educational system. Receptivity has only a low positive correlation with concerns about important aspects affecting the Unit Curriculum.

TABLE OF CORRELATIONS OF INDEPENDENT VARIABLES WITH RECEPTIVITY

<table>
<thead>
<tr>
<th>INDEPENDENT VARIABLES</th>
<th>ATTITUDES</th>
<th>OVERALL</th>
<th>BEHAVIOUR FEELINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost Benefit</td>
<td>0.59</td>
<td>0.56</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Practicality</td>
<td>0.36</td>
<td>0.28</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participation</td>
<td>0.60</td>
<td>0.43</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Support</td>
<td>0.48</td>
<td>0.32</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher Support</td>
<td>0.63</td>
<td>0.45</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concerns</td>
<td>0.12</td>
<td>0.20</td>
<td></td>
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<tr>
<td></td>
<td>0.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feelings toward Previous System</td>
<td>0.69</td>
<td>0.60</td>
<td></td>
</tr>
</tbody>
</table>
With N=379, p<0.001, Pearson product-moment correlations on interval scale scores estimated from the rating response measurement model for each of the variables.

A series of multiple regression analyses with these data, using the three aspects of receptivity separately, confirm and extend these correlational findings. When attitude towards the Unit Curriculum is used as the dependent variable, non-monetary cost benefit perceived by the teachers (B=0.256), perceived participation in school and classroom decisions (B=0.171), perceived support for the Unit Curriculum by significant others (B=0.224), and feelings towards the previous educational system (B=0.274) account for 56 per cent of the variance in attitudes. When overall feelings towards the Unit Curriculum is used as the dependent variable, non-monetary cost benefit (B=0.109), perceived participation in school and classroom decisions (B=0.087), feelings towards the previous educational system (B=0.472), and perceived concerns relating to important issues affecting the Unit Curriculum (B=0.105) account for 39 per cent of the variance in overall feelings. When behaviour intentions towards the Unit Curriculum is used as the dependent variable, non-monetary cost benefit (B=0.136), perceived participation (B=0.083), perceived support for the Unit Curriculum by significant others (B=0.083), and feelings towards the previous educational system (B=0.514) account for 58 per cent of the variance in behaviour intentions.

(B=beta weights or standard regression coefficients in the multiple linear regression equations)

DISCUSSION

In any major educational change which involves teaching in the classroom, the attitudes and behaviour of the teachers who have to implement the change, and particularly the strength of their receptivity to the change, are important determinants of the success of the implementation of that change. It is proposed that there are fundamental variables common to all major educational changes and that a good understanding of the important influences on teacher receptivity to those changes will be reflected in a research finding that a majority of the variance in receptivity can be accounted for by these fundamental variables. In the case of the Unit Curriculum, a major system-wide change introduced in Western Australia in 1988, the fundamental variables have been taken from previous research on change in Western Australia (McAttee and Punch, 1979; Waugh and Punch, 1985; Waugh and Punch, 1987) and from research in other western countries (Giacquinta, 1973; Doyle and Ponder, 1977-78; Berman and McLaughlin, 1980; Conley, 1991) and it would be expected that
these fundamental variables will account for the majority of variance in teachers' receptivity to the Unit Curriculum.

Given that this study accounts for 56 per cent of the variance in teachers' attitudes to the Unit Curriculum with the variables, perceived non-monetary cost benefit by the teachers, perceived participation in school and classroom decisions affecting the Unit Curriculum, perceived support for the Unit Curriculum by significant others such as the Principal and senior teachers, and teachers' feelings about the previous educational system, it seems that the model is very useful in understanding the main influences on teacher receptivity. This is supported by the similar amount of variance (59 per cent) accounted for in teachers' behaviour intentions towards the Unit Curriculum by the same predictor variables. This is further supported by the fact that these results, obtained in relation to a successfully implemented system-wide change in which teacher receptivity was not very favourable in some schools, confirm and extend the results from previous studies of system-wide change in Western Australia when teacher receptivity was particularly favourable to the change. It should be noted here that while the Unit Curriculum was “successfully” implemented by teachers, a great deal of mutual adaptation occurred because insufficient resources, such as more teachers for smaller classes and vertical timetabling, were not provided. That is, the Unit Curriculum was implemented in a variety of ways by different schools and to varying extents because teachers were able to adapt the main aspects of the change and to change their teaching in varying degrees in line with the policies and procedures at their different schools.

These results should prove useful to educational decision makers when they want to introduce any system wide change because the results and the model mean that decision makers should tailor their implementation strategies to focus on the fundamental variables. That is, these results support the view that any system-wide change will be better received by teachers if the teachers perceive that:

(a) the ratio of investment versus return relating to the work teachers have to perform to implement the change is worthwhile for them and their students
(b) they can participate in school decisions relating to those parts of the change
that affect their schools and classrooms

(c) there is support for the change from significant others at the school such as
the Principal and the senior teachers

(d) the change is attempting to overcome deficiencies and problems with the
previous system

(e) their concerns regarding the change can be raised with persons who can and
are "likely to do something about them.

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REFERENCES

Hawthorn, Victoria, ACER.

tradition: a unification with Thurstone scaling, Educational and Psychological

Educational Change:implementing and sustaining innovations, Volume 3
Santa Monica, Rand Corporation.

Conley, S. Review of research on teacher participation in school
decision making,


Rasch, G. (1960). Probabalistic models for some intelligence and attainment tests, Copenhagen, Denmarks Paedogogiske Institut.


in the implementation stage, Review of Educational Research, Volume 57(3),
pp 237-254.