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Keywords

primary, organizational, catholic, australian, stress, occupational, schools, communication

Disciplines

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Keywords Organizational communication, Occupational stress, Catholic schools, Support, Openness, Democratic leadership.

Paper type Research paper

Introduction

In recent times there has been much concern expressed about the status of teachers, their morale and attrition rates, especially in the early career stages (Committee for the Review of Teaching and Teacher Education, 2003; Goddard and Goddard, 2006; Marsh, 2010; ILO/UNESCO, 2000). Occupational stress has frequently been cited as an antecedent of reduced morale, burnout and turnover intention (for example, Goddard & Goddard, 2006; McCormick & Barnett, 2011; Shalem & Hoadley, 2009).

Occupational stress of school staff is not limited to particular types of schools (Adams, 2001). In Australia, government schools make up the largest sector in school education, followed by Catholic systemic diocesan schools. Independent schools comprise a smaller, third sector of schooling. Studies of schools in all systems have reported that teaching is a stressful occupation (ACIRRT, 2002; Geving, 2007; Kyriacou, 2001; McCormick, 1997; 2000).

Previous research has suggested that certain aspects of organizational communication may be related to occupational stress either as antecedent or mediating factors (Margolis and Nagel, 2006; McCarthy et al, 2009; Troman, 2000). However, few studies have investigated the relationships between occupational stress and a comprehensive set of several organizational communication variables and no study of this kind has been conducted in the context of Catholic schools apart from those reported here. Given the concerns about teacher retention and morale, improved knowledge of

occupational stress in schools is valuable for policy making bodies, educational administrators as well as teachers.

In this article we report on the results of two studies investigating the relationships between organizational communication and occupational stress. A brief review of the relevant literature will provide a background to the two studies, including the relevance to Catholic schools. The results will report the findings of the first study, followed by the larger second study. We then conclude with implications for schools, school systems and leadership.

Occupational stress

Occupational stress, generally regarded as a negative or unpleasant experience (Spector, 2008), is also referred to as job stress and work stress (Geving, 2007; Spector, 2008). While it is recognised that some stress may be beneficial to individuals in terms of motivation and challenge (Selye, 1976), the negative psychological impacts of a substantial level of felt stress, referred to as distress (Luthans, 2010), can affect individuals adversely over time.

Several definitions exist for the phenomenon in relation to teaching. For example, some scholars refer to it as an adaption to a physical or other demand resulting in physical and psychological effects (Adams, 2001; Guthrie, 2006), while other definitions have been developed that say more about the nature of stress itself. Otto (1986), for example, described it as a sense of frustration, worry or threat caused by aspects of teaching. A very widely used definition of occupational stress in relation to teaching has been

developed by Kyriacou (2001) who defined teacher occupational stress as the “*experience by a teacher of unpleasant, negative emotions, such as anger, anxiety, tension, frustration or depression, resulting from some aspect of their work*” (p.28). This definition includes a more comprehensive set of stress effects than Otto (1986), focuses on the work in schools, and is, therefore, the one we have used to guide the investigations reported here.

Several models have been put forward to explain occupational stress (Guglielmi and Tatrow, 1998; Kahn and Byosiere, 1992). Person-organization fit models explain occupational stress as the result of an individual’s perceived or real inability to meet the demands of the job (Guglielmi & Tatrow, 1998; Muchinsky, 2009). Stress-strain models suggest that stress will arise from high job demand accompanied by low perceived control of the situation (Guglielmi & Tatrow, 1998; Spector, 2008).

These models are all helpful in explaining how occupational stress occurs. However, the attribution of responsibility model used by McCormick and his associates is well suited to the context of schools. The model posits that school employees essentially blame their occupational stress on aspects of the work environment (McCormick, 2000; McCormick and Barnett, 2011). Central to the model is the assumption that individuals tend to accept responsibility for success, but deny responsibility for failure, resulting in individuals attributing responsibility for their occupational stress to certain domains that represent aspects of the work environment (McCormick, Ayres and Beechey, 2006; McCormick and Barnett, 2011).

The domains are similar in concept to antecedents, and may include students, time demands, school administration and demands from entities external to school (McCormick, 2000; McCormick and Barnett, 2011). For example, McCormick, Ayres and Beechey (2006) identified four stress domains relating, specifically, to student behaviour, personal feelings of adequacy towards their work, forces external to school and school administration practices. McCormick and Shi (1999) identified domains of stress similar to the above as well as one relating to lack of control and powerlessness. Other antecedents of occupational stress identified in the context of schools include student behaviour problems, role overload, role ambiguity, role conflicts, lack of control, poor work environment, poor relationships with colleagues (Adams, 2001; Borg and Falzon, 1991; Geving, 2007; Kyriacou, 2001; Otto, 1986; Troman, 2000).

Organizational communication

Organizational communication is defined for this study as the process whereby people share information relating to the organization's goals, functions or operations (Goldhaber, 1993; Samson and Daft, 2009). Organizational communication has a number of dimensions. Messages are shared vertically (upward and downward) between hierarchical levels in an organization, as well as horizontally among people at the same level and interactions occur via formal and informal channels (Dwyer, 2009; Samson and Daft, 2009).

Organizational communication may be conceptualised in terms of its features, such as openness and load. Communication openness is the free flow of information, including opinions and points of view, among people (Rogers, 1987). Communication load refers to the amount and complexity of information as it is perceived by persons who receive it. Having too much information in volume or information that is too complex to decipher easily is referred to as overload (Dwyer, 2009; Van Zandt, 2004). Having not enough information is referred to as underload (Scott et al, 1999).

Organizational communication has been characterised in terms of its functions (Dwyer, 2009; Katz and Kahn, 1978). For the purposes of the studies reported here, and based on previous literature, a schema of four functions of communication was developed. The functions were operationalised as directive, supportive, cultural and democratic communication.

Directive communication is congruous with Scott and Mitchell's (1976) control function and the maintenance function described by Katz and Kahn (1978) and Goldhaber (1993). It concerns messages that are focussed on influencing, controlling or persuading personnel. Supportive communication refers to the sharing of messages related to support giving, encouragement and morale (Dwyer, 2009; Keyes et al, 1999; Ramus, 2001). Cultural communication concerns communication that is used to inform, socialise or acculturate new members of an organization, as well as maintain existing cultural norms within the organization (Bantz, 1993; Pol et al, 2005).

Democratic communication is to do with participation in decision-making. Changes to workplace practices in schools generally have demanded greater participation in decision-making and this has included the work of teams and committees (Pont, Nusche & Moorman, 2008; Seibold and Shea, 2001; Stohl and Cheney, 2001).

Communication interactions can occur as discrete instances or in relation to others and any interaction can relate to more than one purpose (Nutting et al, 1996). For example, one message can serve both cultural and directive functions.

Organizational communication and occupational stress

Of the antecedents listed above, several may relate to the features and functions of communication mentioned earlier. The literature suggests that aspects of organizational communication, such as openness, supportiveness and direction, for example, may be related to occupational stress.

While directive communication may be beneficial to staff members in terms of reduced role ambiguity (Adams, 2001), there is some evidence to suggest that too much directive communication may be related to occupational stress. Ray (1990) reported that excessive use of directive communication by a school principal caused teachers some degree of stress and some teachers considered quitting as a result. In a recent Australian study Wilson (2002) reported that generally directive management led to teacher feelings of

disempowerment, cynicism and lower morale. Although limited, these findings suggest the following hypothesis:

H1: Directive communication will be positively related to occupational stress.

There is stronger evidence in the literature of a relationship between supportive communication and occupational stress. Perceived lack of supportive communication from superiors has been strongly related to increased occupational stress in a number of studies and support from superiors appears to have a mediating effect in others (Chaplain, 2008; Margolis and Nagel, 2006; Spielberger and Reheiser, 1995; Troman, 2000). According to Spielberger and Reheiser (1995), lack of support from supervisors was a prominent source of stress for employees in various organizations. Using interview data, Troman (2000) described how lack of perceived support from a superior increased the stress a teacher felt from student behaviour. Margolis and Nagel (2006) reported that supportive communication in the form of appreciation and interest from superiors was related to reduced stress. In a prominent study of U.S. teachers, supportive communication from principals was strongly related to role stressors (role ambiguity and role conflict) and, indirectly, moderating against burnout (Starnaman and Miller, 1992).

Supportive communication from peers has been recognised as a mediator of occupational stress. In an Australian study of primary and secondary school teachers, Hart, Wearing and Conn (1995) found that supportive

communication with colleagues was related to lower stress from teacher-student relations. Lowered levels of supportive communication from peers has been associated with higher occupational stress (Joint Committee of Inquiry into Teacher Stress, 1987). Later studies studies have suggested that this is especially so for primary school staff (McCormick, 1997; Shen, 2009). Given these findings the following hypothesis is posited:

H2: Supportive communication will be negatively related to occupational stress.

There is a scarcity of literature investigating the relationship between behaviours consistent with cultural communication and occupational stress. Considering its role in socialising new members, maintaining organizational norms and clarifying expectations (Deal, 1985) one might predict that cultural communication would be negatively associated with occupational stress, especially from the perspective of role ambiguity. In outlining the function of culture in organizations, Schein (2004) made it clear that organizational culture serves to reduce anxiety caused by role uncertainty and overload. He asserted that the system of beliefs put in place by a culture acts as reference criteria for the solution of work problems. Similarly, Pheysey (1993) contended that organizational cultures regulate behaviours through specified role purposes and descriptions, thereby reducing uncertainty. In the light of this, the following hypothesis is proposed:

H3: Cultural communication will be negatively related to occupational stress.

Participating in decision making gives employees opportunities to exert control over their work environment. Several studies concerning links between occupational stress and autonomy and control have focussed on democratic communication as participation in decision making. There is general support for the idea that democratic communication is negatively related to occupational stress (Lambert and Paoline, 2008; Pearson and Moomaw, 2005; Tytherleigh et al, 2005).

Spielberger and Reheiser (1995) reported that low participation in decision making was a highly prevalent source of stress for a sample considered representative of a variety of occupations. Lambert and Paoline (2008) reported that input into decision making had a considerable negative impact on job stress. Otto's (1986) study of Australian teachers suggested that lack of democratic communication resulted in stress because of ideas being imposed on teachers from administrators without consultation, and a felt lack of scope for innovation. These findings lead to the following hypothesis:

H4: Democratic communication will be negatively related to occupational stress.

Very little has been written about a relationship between openness of communication and occupational stress. Johnson and Indvik (1990) described how a supervisor's sharing of information with staff members reduced role ambiguity. Clearly, behaviour consistent with openness is likely to be

negatively associated with stress (from role ambiguity if nothing else).

Therefore, the following hypothesis is posited:

H5: Openness of communication will be negatively related to occupational stress.

Communication load has been conceptualised in terms of overload and underload. According to McKinnon (1990), overload may lead to feelings of pressure through an excessive amount of information to process in a short time. In discussing the effect of communication load on librarians, Meier (1963) observed that information overload may lead to stress and, consequently, absenteeism or turnover. Communication overload may influence stress from workload or be a stressor itself.

Communication underload may lead to stress through role ambiguity and lack of feedback about work (Otto, 1986). From interview data McCormick (1997) found insufficient communication among staff to solve professional problems, especially those concerning children with needs, was a source of stress for teachers.

Given the potential issues associated with overload and underload, the concept of adequacy needs exploring. Adequacy represents a mid-point between overload and underload, meaning 'just enough' or optimal amount of information needed to carry out work without being overwhelmed (Scott et al, 1999).

Given the literature, the following hypotheses are posited:

H6: Communication overload will be positively related to occupational stress.

H7: Communication underload will be positively related to occupational stress.

H8: Communication adequacy will be negatively related to occupational stress.

It is surprising that, given the links reported in previous literature, there has not been a more comprehensive investigation of the relationships between organizational communication and occupational stress using an extensive set of organizational communication variables. It follows that no study of links between organizational communication and occupational stress appears to give us the complete picture of how the various aspects of communication actually work when taken altogether. If there are several communication variables related to occupational stress then the important question to answer is which aspects of communication are more important compared to others and why? The studies reported here were attempts to answer these questions.

Why Catholic Schools?

Australian Catholic schools warrant particular attention because they have cultures reported to be more normative than, and in other ways different to, government schools (Solman & Feld, 1989; Johnson, McCreery & Castelli, 2000). A recent study of school types reported that Catholic schools had very

collegial and cooperative cultures, with many staff members describing a 'family' atmosphere among staff, while public school cultures were described as 'mechanistic', focused on standards, testing and having a factory-like feel (Dorner, Spillane & Pustejovsky, 2011). Indeed, the family metaphor has been reported by other studies of Catholic school culture (Belmonte & Cranston, 2009; Scholefield, 2005). It is clear that an important facet of Catholic schools is the sense of community (Belmonte & Cranston, 2009; Cook & Simonds, 2011; Flynn & Mok, 2002; Scheopner, 2010).

The focus on community is not surprising given the espoused visions and values, centred on the teachings of Jesus Christ and promoted by Catholic school bodies in Australia and elsewhere. These mostly relate to communities of harmony and positive relationships where respect, dignity, support, openness and service to others are key aspects of school life (Sydney Archdiocesan Schools Board, 2009; Centre for Catholic School Effectiveness & Roche Centre for Catholic Education, 2012; Congregation for Catholic Education, 1997; National Catholic Education Commission, 2005; Queensland Catholic Education Commission, 2008).

These values are likely to be enacted in behaviour that relates to organizational communication. Key aspects of the school culture in this regard include supportiveness, openness, approachability of leadership, participation in decision-making and evangelizing (which relates to communication of the Catholic worldview and culture). In their extensive study of Australian Catholic schools Flynn and Mok (2002) described them as places where "*the*

atmosphere is friendly and supportive and executive staff are approachable” and where a “*deep caring spirit*” was salient (p.150). In a more recent study of Australian Catholic schools Belmonte and Cranston (2009) described principals as individuals who showed care and concern for staff members and who encouraged staff involvement in school decision making. The role of principals in communicating and modeling Catholic values and culture to staff and school community was reported in several studies (Belmonte & Cranston, 2009; Flynn & Mok, 2002; Rymarz, 2010).

Two studies

The use of two studies needs some explanation at this point. Schooling in Australia experienced significant change between 1998 and 2008. Moves towards greater accountability for student achievement, accompanied by the introduction of external testing programs and a national reporting standard have been related to a drive for better student outcomes in that period (Council for the Australian Federation, 2007; OECD, 2005). Teachers and other staff members have been expected to have greater input into school decision making as well as the development of schools as professional learning communities (Allen Consulting Group, 2004; Pont, Nusche & Moorman, 2008). This has resulted in job intensification, particularly from the amount of extra paperwork and other administration tasks teachers and other staff have been required to do (Timms et al, 2007).

For Catholic systemic schools this has evolved into joint constructed school strategic management plans, school review cycles, performance management

cycles and an expectation for ongoing professional development in relation to changes in school curriculum and assessment (see, for example, Catholic Education Office Diocese of Wollongong, 2010; Catholic Education Office Sydney, 2010). These developments have not only been likely to make teaching and other work in schools more stressful. They are also likely to increase the perceived occurrence of certain types of communication such as democratic and directive communication as well as potential for greater perceived levels of communication overload.

The two studies were used to determine if the changes described above resulted in differences in the relationships between organizational communication and stress. The first study provides an initial investigation, testing the hypotheses mentioned previously. The second study will attempt to validate the conceptual framework of communication used in the first, while also testing the stated hypotheses in light of significant changes to work environments.

Method

Relationships between organizational communication and occupational stress were investigated via two studies. Both studies were based on a quantitative research design involving a questionnaire survey. Participation was voluntary and confidentiality and anonymity were assured. The first study was conducted in Catholic primary schools in New South Wales as part of a larger study of school communication involving variables other than occupational stress, such as job satisfaction and communication methods. Data were

collected between June 1998 and March 1999. The second study was conducted in Catholic primary schools in New South Wales, Australian Capital Territory and Queensland. Data collection for this study took place between May 2008 and June 2009.

Sample

For the first study, questionnaire surveys were sent to 684 staff members of Catholic schools in New South Wales, Australia. Three hundred and fifty-six useable questionnaires were returned, providing a response rate of 52%. The participants in this study consisted of staff members from 52 schools in six of the Catholic education systems in New South Wales.

For the second study, questionnaire surveys were sent out to 1356 staff members of diocesan Catholic schools in New South Wales, Australian Capital Territory and Queensland. Six hundred questionnaires were returned. Of these, 568 questionnaires were deemed usable, giving a final response rate of 42%. The participants were from 62 schools in 10 Catholic dioceses across the three states.

Demographics for both samples were similar to those for the population in the states they were drawn from in relation to gender, but in terms of job position, non-teaching staff were under-represented. Unfortunately, data from all three states were not available to make age group or experience comparisons (Catholic Education Commission, 1998; National Catholic Education

Commission, 2008). Therefore only gender and employment position are compared in Table 1 below.

Table 1: Demographics by gender and employment position

	Study 1			Study 2		
	1998 Sample n	1998 Sample %	All Catholic primary staff ¹ %	2008 Sample n	2008 Sample %	All Catholic primary staff ² %
Gender						
Male	49	13.8	15.2	70	12.3	14.8
Female	305	85.7	84.8	490	86.3	85.2
Position						
Teacher	223	65.4	59.9	353	62.1	³
Executive	81	22.8	14.9	110	19.4	³
Combined	304	88.2	74.8	463	81.5	58.0
Non-Teach.	41	11.5	25.2	100	17.6	42.0

¹ From New South Wales

² From New South Wales, Australian Capital Territory and Queensland

³ Classroom teaching and executive staff combined in NCEC data

Small percentages of missing responses on the survey, not included above

Instruments

A paper-based survey was used. The first section requested brief biographical information about gender, age, years of experience in the job and at the current school and position. Organizational communication was investigated using the Organizational Communication in Primary Schools Questionnaire (OCPSQ) developed by De Nobile (2003). It comprised 62 items relating to organizational communication. The items were descriptive statements referring to directive, supportive, cultural and democratic communication practices, openness and load (overload, underload and adequacy). Participants were required to indicate the extent to which they agreed with

statements that described communication in their schools on a scale from 1 to 5 (strongly disagree) to 5 (strongly agree).

Occupational stress was measured using a refined version of the Teacher's Attribution of Responsibility for Stress Questionnaire (TARSQ) developed by McCormick and others (McCormick, 1997; McCormick, Ayres and Beechey, 2006; McCormick and Shi, 1999). The instrument contained 20 items. Each item was a statement evocative of a common source of stress in schools. These sources of stress included student behaviour, administrative support and communication systems in the school (not the same as the OCPSQ scales, but, rather, communication as a stressor generally). Participants were required to rate each item according to how stressful they were on a scale ranging from 1 (no stress) through to 5 (extreme stress). Successive studies have proven it to be a valid and reliable instrument (McCormick and Barnett, 2011; McCormick Ayres and Beechey, 2006).

The TARSQ is based on attribution theory and the items relate to various domains of occupational stress. Refinements involved deletion of items related to external demands as they were irrelevant to the study and inclusion of three items relating to school communication, such as "Interruptions due to messages."

Results: 1st study

Factor analysis of the organizational communication items

Factor analysis provides a way of reducing large amounts of data to smaller conceptually interpretable ‘factors’ (Hair et al, 2010). Factor analysis was used to determine the salient organizational communication variables statistically, and hence, without prejudice to preconceptions about which items on surveys ‘should’ relate to those variables. This and the calculation of reliability statistics provide a justification for the variables that are investigated later (Hair et al, 2010).

For the OCPSQ items principal axis factor analysis was utilised as it has been proven quite effective in identifying factor structures from exploratory designs over principal components analysis (for example, Anzai & Paik, 2000; Lowe & Reynolds, 2004). The procedure revealed a 10 factor solution that was interpretable. The number of factors was arrived at based on the Kaiser criterion, examination of the scree plot and overall comprehensibility. An oblique rotation (oblimin) was chosen because of potential intercorrelations between some communication constructs (Hair et al, 2010; Nutting et al, 1996). The solution accounted for 58% of the variance. A summary of this factor solution is provided in Table 2 and explained below.

Table 2. Factor solution for OCPSQ items from the 1st study

Factor name	Number of items	Eigenvalue	Reliability (alpha)
Vertical openness of communication	13	21.99	0.95
Horizontal supportive communication	10	4.79	0.89
Directive communication	3	2.51	0.61
Access to communication channels	5	1.64	0.84
Cultural communication	6	1.61	0.81
Vertical load of communication	2	1.49	0.45

Upward supportive communication	3	1.18	0.85
Downward supportive communication	6	1.17	0.94
Adequacy of information	4	1.15	0.63
Democratic communication	7	1.03	0.85

Vertical openness of communication represented openness in both upward and downward interactions between the principal and staff members. It was typified by items such as “The principal communicates honestly to staff” and “Staff at this school can approach the principal with bad news.” *Horizontal supportive communication* related to support shared among peers. Items typical of this factor were “Staff members support one another” and “As a staff we help each other get through the day.” *Directive communication* concerned instruction giving by the principal to gaining compliance. Typical items loaded on this factor were “The principal tells staff how things are to be done” and “The principal often directs work.”

Access to communication channels concerned opportunities to communicate with the principal. Examples of the items that loaded on this factor were “Staff at this school have ample opportunities to see the principal about work issues” and “The principal sets times when staff can meet with him/her to discuss things without interruptions.” *Cultural communication* represented the transmission of cultural information among staff members and with the principal. Two items from this factor include “Staff members show new staff ‘the ropes’” and “Staff members inform new staff about the school’s mission.”

Vertical load of communication concerned the amount of information trafficking between staff and the principal. This factor was retained despite the bi-directionality of the communication flow depicted, because it was interpretable. *Upward supportive communication* concerned staff members giving support to the principal. Items loaded on this factor included “Staff give moral support to the principal” and “Staff members give emotional support to the principal.” *Downward supportive communication* related to the ways in which a principal might communicate support to staff members. Items typical of this factor were “The principal is encouraging” and “The principal gets behind staff when they are doing things about which they are not confident.”

Adequacy of information was a factor that combined items originally meant to represent other constructs including accuracy and load. It was, however, interpretable as a factor concerned with the perception of sufficiency and accuracy of information received from the principal and other colleagues. Items loaded on this factor included “Information that comes from other staff members is reliable” and “Staff receive sufficient information from the principal to know how to do their jobs.”

Democratic communication concerned staff participation in decision-making activities including involvement in committees, teamwork and other inputs. Items that typified this factor included “The principal asks for input from staff on policy issues” and “Staff are encouraged to work with one another to change or review aspects of the school’s organization.”

Communication underload did not emerge as a factor. Of the items developed for this, two did not load on any factors while two others loaded on other factors, but made sense there. For example one item, “Staff members receive enough information from one another” (to be reverse-scored) loaded on *Horizontal supportive communication*. Adequacy emerged as a different factor to the one first conceptualised. While items written to represent adequacy were concerned timeliness and having enough information, a different factor emerged that concerned accuracy as well, hence the name *Adequacy of information* (and not communication). *Access to communication channels* was not anticipated, but represented a useful and sensible aspect of organizational communication.

Factor analysis of the occupational stress items

Principal axis factor analysis with varimax rotation was chosen due to the exploratory nature of the study and the orthogonal rotation method was appropriate given there were no expected intercorrelations (Hair et al, 2010). The procedures revealed a four-factor solution. The criteria used to determine the number of factors was the same as for organizational communication items. The solution was easily interpretable and accounted for 59% of the variance. A summary of the factor solution is presented in Table 3.

Table 3. Factor solution for TARSQ items from the 1st study

Factor name	Number of items	Eigenvalue	Reliability (alpha)
Student domain	6	6.06	0.87
Information domain	6	2.73	0.82
School domain	3	7.51	0.80

Personal domain	2	1.01	0.63
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Student domain comprised items that referred to student related stressors such as verbal abuse and discipline. Items typical of this factor included “Having to deal with students who constantly misbehave” and “Poor attitudes of students.” *Information domain* related to stress arising from issues of communication in the school such as opportunity to find information and interruptions. Typical items were “Inadequate means of information sharing among staff” and “Lack of opportunity to find out what is happening.” *School domain* concerned support and appreciation from the principal as well as the extent to which the general atmosphere of the school was supportive and friendly. Two such items included “Lack of support from the principal” and “Lack of a supportive and friendly atmosphere.” *Personal domain* was concerned with issues such as the feeling of not being suited to the job and feelings of inadequacy or lack of preparedness for the job. The items were “Feeling of not being suited to the job” and “Personal failings.”

Cronbach alpha statistics were calculated for all factors in order to establish their consistency as a scale representing a construct. The majority of the reliabilities were above 0.70 (Hair et al, 2010). Three factors that had reliabilities of between 0.60 and 0.68 were retained due the exploratory nature of the analyses, the possible explanation of lower sets of items relative to other factors (Hair et al, 2010) and their easy interpretability. The relatively low reliability of *Vertical load of communication* was probably due to there being only two items, which may have depressed the Cronbach α statistic

(Hair et al, 2010). Inspection of the skewness and kurtosis figures suggested normal distributions for each factor.

Correlations

Pearson correlations were calculated for all of the organizational communication and occupational stress variables. These are shown in Table 4. Examination of the correlation coefficients for all combinations of variables revealed no unexpected results in terms of direction.

Table 4. Pearson correlations from the 1st study.

variables	Vertical openness of communication	Horizontal supportive communication	Directive communication	Access to comm. channels	Cultural communication	Vertical load of communication	Upward supportive communication	Downward supportive communication	Adequacy of information	Democratic communication
Student domain	-.19**	-.06	.07	-.21**	-.03	.11	-.07	-.17**	-.01	-.18**
Information domain	-.62**	-.37**	.02	-.53**	-.35**	.18**	-.46**	-.54**	-.41**	-.54**
School domain	-.65**	-.45**	.10	-.48**	-.32**	.18**	-.49**	-.67**	-.38**	-.61**
Personal domain	-.01	-.08	.06	-.10	-.03	.11*	-.01	-.01	.02	-.05

** p<0.01 * p<0.05

While the correlations confirm relationships between aspects of organizational communication and occupational stress, the number of variables involved, make it difficult to determine nature of the relationships, particularly which communication variables have more influence than others with regard to given

occupational stress domains. In order to do this a more sophisticated multivariate method of analysis is required.

Multiple regression analyses

Stepwise multiple regression was employed to identify predictors of occupational stress (dependent variables) from among the aspects of organizational communication (independent variables) (Hair et al, 2010). A summary of all regression models is presented in Table 5.

Table 5. Summary of multiple regression models from the 1st study.

Variables	R ²	R ² Change	F	
Dependent: Student domain				
Access to communication channels	.50		16.62	***
Upward supportive communication	.63	.13	4.21	*
Dependent: Information domain				
Vertical openness of communication	.39		201.85	***
Access to communication channels	.41	.02	9.59	***
Vertical load of communication	.42	.01	4.46	*
Dependent: School domain				
Downward supportive communication	.44		255.95	***
Horizontal supportive communication	.47	.03	13.97	*
Democratic communication	.48	.01	8.23	
Directive communication	.49	.01	5.06	

* p<.05 ** p<.01 *** p<.001

The strongest predictor of *Student domain* stress was *Access to communication channels* which explained 50% of the variance. The next best

predictor of *Student domain* stress was *Upward supportive communication* which explained a further 13% of the variance.

Given the number of moderate to strong correlations, the results for *Information domain* were a little surprising. *Vertical openness of communication* was the strongest predictor, accounting for 39% of the variance. *Access to communication channels* explained a further 2% of the variance and *Vertical load of communication* 1%. Supportive and democratic types of communication, while correlating strongly with this variable, were clearly not as important to stress arising from school communication issues.

Four communication variables accounted for up to 49% of the variance in *School domain*. The strongest predictor was *Downward supportive communication*, which accounted for 44% of the variance in *School domain*. *Horizontal supportive communication*, *Democratic communication* and *Directive communication* were less powerful, but still significant predictors.

The first study established the validity of the OCPSQ as a measure of organizational communication. However, two of the factors while interpretable, were slightly problematic in that they did not represent constructs such as load and adequacy as completely or clearly as would have been desired. Some redevelopment of the OCPSQ was necessary if the survey was to be used again.

Results: Second Study

The second study utilised an updated version of the OCPSQ and an identical form of the TARSQ. The OCPSQ was modified in light of issues identified with some items in the first study. Specifically, some items did not load well on any factors in the first study and were removed from OCPSQ, while new items were constructed to better account for the concepts of adequacy and communication underload in order to achieve more definitive factors than *Vertical load of communication*, a factor that while interpretable, only dealt with overload, and *Adequacy of information* which was less clear than equivalents developed in other research (Day et al, 1998). In all, 4 items were deleted and 8 new items (to do with underload and adequacy) were added. This resulted in a new version of the OCPSQ comprised of 66 items.

Given the altered nature of the OCPSQ, exploratory factor analyses were conducted using the same procedures as in the first study, with 4 items omitted from the study due to low communalities. A ten factor structure emerged that justified the modifications as the factors were all easily interpretable and, indeed, this time all the factors were in line with the theoretical constructs first developed for communication with the exception that a factor representing underload did not emerge. Items constructed for this loaded on other factors. For example, the new item “I do not get enough information to know what is going on in this school” loaded on the new factor termed *Adequacy of communication*. This made sense as a reverse scored item.

The factor *Adequacy of communication* was better representative of the theoretical construct of adequacy mentioned previously. Other items loading on the factor included “Staff members receive enough information from one another” and “Information that I miss is passed on to me by colleagues.” Overload was better represented by the factor *Overload of communication* which comprised items such as “I am overloaded with information” and “There is too much information from other staff.”

The new ten factor solution for organizational communication was stronger than that from the first study in that variance explained was 61% and reliabilities were again high, indeed, stronger in some cases. A summary of this solution is provided in Table 6.

Table 6. Factor solution for OCPSQ items from the 2nd study

Factor name	Number of items	Eigenvalue	Reliability (alpha)
Vertical openness of communication	7	32.34	0.91
Horizontal supportive communication	10	8.02	0.85
Directive communication	5	4.07	0.72
Access to communication channels	5	3.25	0.77
Cultural communication	5	2.80	0.77
Overload of communication	7	2.50	0.78
Downward supportive communication	6	2.28	0.88
Democratic communication	7	2.04	0.89
Upward supportive communication	4	1.85	0.78
Adequacy of communication	6	1.70	0.81

A three factor solution emerged for the TARSQ items, accounting for 62% of the variance, after three items were removed from the analyses due to low communalities.

The first factor was titled *School domain* even though it comprised some items that had been part of *Information domain* in the first study. Items relating to information such as “Inadequate means of sharing information among staff” related well with items about school supportiveness and climate such as “Lack of a supportive and friendly atmosphere” and “Lack of opportunity to participate in decision making.” It was a richer, more complete, accounting of the sources of stress arising from school organization and climate than what was achieved in the first study.

The second factor, *Student domain*, was similar to the first study, comprising the exact same items. The third factor, *Personal domain*, was similar, but comprised an additional item “Difficulty of setting and maintaining standards”, that related well to the idea of not being suited to the job. The item had been omitted in the first study due to low communalities, but added stability to this factor, improving the reliability. A summary is provided in Table 7.

Table 7. Factor solution for TARSQ items from the 2nd study

Factor name	Number of items	Eigenvalue	Reliability (alpha)
School domain	8	41.89	0.90
Student domain	6	13.28	0.88
Personal domain	3	6.91	0.68

Cronbach alpha statistics for the second study were stronger in that there were fewer reliability coefficients below 0.70. The only factor below this, *Personal domain*, was interpretable and the statistic likely was a reflection of the lower number of items relative to other factors (Hair et al, 2010).

These results appear to justify the modifications made to the OCPSQ. Again, inspection of the skewness and kurtosis statistics suggested normal distributions.

Correlations

Pearson correlations were calculated in similar fashion to the first study. The results are shown in Table 8. Again, all hypotheses were supported. In a similar fashion to the first study, the stronger correlations were with school domain stress.

Table 8. Pearson correlations from the 2nd study.

variables	Vertical openness of communication	Horizontal supportive communication	Directive communication	Access to communication channels	Cultural communication	Upward supportive communication	Downward supportive communication	Adequacy of communication	Communication Overload	Democratic communication
Student domain	-.17**	-.15**	-.08	-.17**	-.05	-.17**	-.15**	-.22**	.20**	-.13**
School domain	-.63**	-.33**	-.32**	-.51**	-.23**	-.43**	-.59**	-.53**	.53**	-.56**
Personal domain	-.16**	-.19**	-.12**	-.17**	-.11*	-.15**	-.12**	-.22**	.21**	-.11*

** p<0.01 * p<0.05

Multiple regression analyses

Stepwise multiple regression was again employed to identify predictors.

Regression models are summarised in Table 9 below.

Table 9. Summary of multiple regression models from the 2nd study.

Variables	R ²	R ² Change	F	
Dependent: Student domain				
Adequacy of communication	.47		23.76	***
Overload of communication	.59	.12	6.71	*
Dependent: School domain				
Vertical openness of communication	.41		340.00	***
Overload of communication	.45	.04	36.23	***
Adequacy of communication	.47	.02	17.00	***
Downward supportive communication	.48	.01	4.76	*
Dependent : Personal domain				
Adequacy of communication	.05		25.58	***
Overload of communication	.06	.01	7.12	**

* p<.05 ** p<.01 *** p<.001

Adequacy of communication was the strongest predictor of *Student domain* stress, accounting for 47% of the variance. *Overload of communication* accounted for a further 12% of the variance. *Vertical openness of communication* was the strongest predictor of *School domain* stress, explaining 41% of the variance. *Overload of communication* accounted for a further 4% of the variance in *School domain* stress. *Adequacy of*

communication and *Downward supportive communication* accounted for the remaining variance in this stress domain.

While no predictors of *Personal domain* stress emerged in the first study, two emerged in the second, although these were weak. Together they accounted for a small but significant 6% of the variance. *Adequacy of communication* was the best predictor, followed by *Overload of communication*.

Summary of hypothesised relationships

H2, H4, H5 and H8 were supported in both studies. Supportive communication, Democratic communication, openness and adequacy were all negatively associated with domains of stress. The strongest associations were with adequacy, openness and downward support. H6 was supported, more so in the second study, where it was found to be a stronger predictor of occupational stress.

H1 and H3 received only partial support. Directive communication was shown to be positively correlated to occupational stress, but had limited predictive value in the first study and did not produce any significant associations in the second study. Cultural communication, despite moderate negative correlations, did not show up as a predictor of any stress domains. H7 could not be supported as a factor representing underload did not emerge in either study.

Discussion

The two studies confirm the importance of openness of communication between principals and staff. It is clear that greater openness between staff and school executive is associated with lower stress from school organization and climate, and vice-versa. Previous literature had not produced such clear linkages. The association is logical because open communication between staff and executive is needed to facilitate genuine information sharing within a school in terms of general information, support for staff and participation in decision making.

The second study helped to further clarify how communication load may be associated with occupational stress. The strong associations between *Overload of communication* and *Adequacy of communication* with the three domains of stress are important to examine given changes in schools that occurred in the time between the two studies. Their greater prominence in the second study might be a reflection of job intensification over the period. However, it might also reflect better sets of survey items as a result of the modifications made to the OCPSQ. In any case, having enough information is important for staff members to do their work with students and otherwise operate in schools. The relationship of adequacy with stress from personal issues is harder to explain, however, classroom behaviour issues often require teachers to seek information about students as well as about school procedures. The absence of this information could conceivably become a factor behind frustration and stress. Likewise, the association with stress arising from person-job issues may arise from lack of information on how to

perform the job, leading to feelings of ambiguity, uncertainty and a feeling of failure in the job.

The importance of downward support from superiors suggested by previous literature was confirmed by the results of both studies. The associations reported here indicate that greater downward support is related to lower stress from school climate related issues and vice-versa. It makes sense that *Downward supportive communication* is strongly related to *School domain* as this domain of occupational stress has to do with lack of appreciation and support from the principal within the overall school climate. What cannot be explained at this point, other than possible influences of communication load variables, is why other forms of supportive communication were not statistically significant predictors of occupational stress in the second study as they were in the first.

Access to communication channels was unanticipated in the initial conceptualisation of organizational communication. However, its emergence was fortuitous in that it added to our knowledge of how communication works in schools. Its associations in the first study were logical. The finding that greater access to formal communication channels within the school is associated with lower stress arising from students may relate to support for problem behaviours and other student related issues. It is often the case that teachers and other staff members seek times to meet formally with members of the school executive to discuss solutions to student related problems such

as inappropriate behaviour, poor performance or emerging special needs (Marsh, 2010).

Importantly, the factor structures of both the organizational communication and occupational stress scales were relatively stable across the two studies. Indeed, due to refinements, the OCPSQ items produced a more interpretable factors relating to communication load for the second study. The 'disappearance' of an information related stress domain was easily explained. We are confident that both instruments are valid and reliable measures of the constructs investigated here.

Implications for policy and practice

It is acknowledged that the participants in the two studies represent only a fraction of the total population of staff members in Catholic primary schools within the given states. It is also to be recognised that other sectors of Australian schooling, such as government and independent schools, were not represented in either study. While this may limit the generalisability of the findings, the focus on Catholic schools did allow for an initial view of the hypothesised relationships uncluttered by considerations relating to any possible sector differences. As such, some implications can be drawn for leaders of Catholic primary schools and systems to which they belong.

Of the communication variables investigated, openness, democracy, access and support were congruent with Catholic culture and values of collegiality, sense of community, openness and supportive leadership (Belmonte &

Cranston, 2009; Flynn & Mok, 2002). That these have been found in two studies to be strongly related to reduced levels of occupational stress should be a source of optimism to Catholic school systems. If teachers and other staff are stressed, these are aspects of school culture that have the potential to minimise or at least moderate it. In line with the policies and intentions common to most Catholic school systems (Flynn & Mok, 2002), we believe the promotion of supportive and open communication can be a model of good practice in relation to staff morale for other faith based schools and, perhaps, government schools as well.

Two aspects of communication that may complement one another are *Vertical openness of communication* and *Access to communication channels*. Principal and school leadership approachability and availability encourage openness, while openness may drive efforts to maximise staff access to communication with school leadership. Given the relationship between these two aspects of communication and reduced occupational stress, it is important that Catholic school systems continue to encourage to school leadership, and particularly principals, to work towards and maintain opportunities for staff members to interact with them, while at the same time promoting honesty and trust (key elements of openness and fundamental to the Catholic culture).

Openness between school leaders and staff and access to formal channels of communication will encourage supportive communication between them. The two studies confirm the suggestions from previous research that downward support may ameliorate felt stress (Chaplain, 2008; Starnaman and Miller,

1992). We have not investigated how stressed staff members are from various domains. We have solely investigated relationships with communication. However, we suggest that principals need to be models of support giving so that other school leaders and staff members become encouragers and supporters of their colleagues in turn. Given the positive associations with *Democratic communication* we encourage school leaders to promote staff involvement in decision making and other collaborative practices such as teamwork.

Because of their unique role in schools, principals must be active in encouraging and facilitating open communication with staff. Principals need to exhibit a willingness to accept bad news and avoid 'shooting the messenger' or being judgemental in any way. In this way, honesty and trust may be encouraged. However, this alone may not be enough. It is through sufficient access to the vertical and horizontal network that a school may establish open communication as a regular aspect of communication in schools. This is supported by previous literature which recommended such practices as principals frequently engaging in formal and informal interactions, encouraging staff to approach them and having an open-door policy (De Nobile, 2010; Dinham, 2008).

The implications for all school systems mainly relate to staff turnover and policy. In light of previous research that linked occupational stress and low morale to health issues and turnover (Goddard & Goddard, 2006; McCormick & Barnett, 2011), awareness of the ways aspects of school communication

relate to occupational stress needs to be reflected in policies that encourage staff development in communication practices and a culture of collegiality and professionalism that are driven by supportiveness, openness, democratic practice and access to information that is timely and unrestricted. We recommend that the skill sets and competencies required in the selection of principals and other school leaders (as well as key indicators for the performance review of all members of the school executive) reflect abilities in the areas of community building, fostering collegiality and collaborative styles of leadership.

Implications for future research

There are implications for future investigation of organizational communication and occupational stress. The two studies reported here focussed on Catholic schools as a unique cohort. To aid the generalisability of results and advance our knowledge of how communication may influence stress, research of this type needs to be conducted that involves government and independent schools. Additionally, more sophisticated statistical analyses and the use of qualitative data would help to explain the relationships with greater clarity.

Conclusion

The studies reported here used a conceptual framework of organizational communication that was comprehensive in relation to previous research and supported empirically and was relatively stable over time. The main purpose was to test hypothesised relationships between aspects of organizational communication and domains of occupational stress. While the results do not

point to causal relationships, it can be at least asserted that aspects of organizational communication such as support, openness, access, participation in decision making (democracy), and load have important associations with domains of occupational stress relating to school, students and personal orientation to work in schools.

Using Catholic schools as a lens through which to view these relationships, we have been able to see possibilities in regard to how a set of values and, specifically, school cultures that espouse a sense of community, collegiality, openness and democracy might be enacted in types of communication that have strong associations with occupational stress. System directors, principals and other leaders might use these insights to examine their own practices and work towards making work in schools less stressful and, ultimately, more productive.

Despite some limitations of generalisability and the fact that data were self-reported, the findings are relevant and important to schools as organizations. They provide some insights for school leadership to explore in seeking to develop their practices, as well as working towards the ongoing challenges of school development and improvement for the sake the wellbeing and retention of school staff and, most importantly, a quality learning environment for the students.

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