**Meanings in Education Research**

***The Business of Schools***

***: The application of strategic management theories to risk-taking in decision-making in public schools***

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**Abstract**

Reasoned risk-taking has long been associated with governance mechanisms for organisations within business contexts. Research has been conducted in business contexts to develop theories of risk-taking that incorporate governance mechanisms and stakeholder mechanisms, including the experience of management. This chapter applies two of these theories, agency and stewardship theory, in the context of the public sector. In particular the environment of public schools is used to explore the problem of risk-taking in decision-making by school principals. Here, risk-taking is defined as when decisions are made that are not compliant with the *regulatory framework*, the primary governance mechanism for public schools in Western Australia. Such decisions involve risk as principals may be exposed to criticism for non-compliance with established policy when negative outcomes arise from decision-making. This creates a dilemma for principals who need to be able to respond to the locally identified needs within a school, and simultaneously comply with all State and Commonwealth departmental requirements.

**Introduction**

Research has been conducted in a range of business contexts to develop theories of risk-taking that incorporate governance mechanisms and stakeholder mechanisms, including the experience of management (Libby & Fishburn, 1977; Wiseman & Gomez-Meija, 1998; Wiseman, Gomez-Mejia & Fugate, 2000; Carpenter & Westphal, 2001; Carpenter, Pollock & Leary, 2003; Nicholson, Soane, Fenton-O'Creevy, & Willman, 2005; Petrakis, 2005). However, each of these studies has been conducted within the context of a business environment. Investigation of the applicability of these theories within public sector contexts is lacking. This chapter seeks to apply these theories to develop meaning around risk-taking in decision-making within the public sector environment of public schools. The chapter applies two theories, agency and stewardship theory, that are commonly used in business contexts in relation to reasoned risk-taking in decision-making. These theories, and their underlying behavioural perspectives, provide the metaphor to enable meaning to be created in the context of decision-making for public school principals.

Principals of public schools in Western Australia are provided with guidance for their decision-making by centrally developed educational policy and procedures included on the “regulatory framework” (Department of Education and Training, 2004). The regulatory framework provides a mechanism for assuring regulatory compliance across the department. The regulatory framework consists of the Acts, Regulations, delegations, policies, procedures and Chief Executive Officer’s Instructions that together establish the mandatory rules of operation for all officers of the Department of Education and Training employed in the provision of education in public schools. The regulatory framework contains all of the policy and procedures documentation required for governance and is used by principals in decision-making within the school environment.

**Theories of Strategic Management**

### Agency Theory

The terms ”agents”’ and ”principals” are frequently used in the agency theory literature (Jensen & Meckling, 1976; Eisenhardt, 1989). However, for the discussion in this chapter, the terms ”managers” and ”shareholders” will be used throughout. This is to avoid confusion in meaning as in this discussion, school principals are the “agents” or “managers” of their firm, the school, and the “principals” or “shareholders” are the State government Ministers for Education and Training and hierarchy of the public sector within the central office of the Department of Education and Training. These shareholders engage principals to manage schools and achieve a range of educational outcomes for students.

A number of studies of risk-taking, decision-making and the influence of corporate governance have been based on the tenets of agency theory (Eisenhardt, 1989; Hoskisson, Hitt, Wan, & Yiu, 1999, p.420). Agency theory posits that due to separation of ownership and control in organisations, there are often conflicting interests between shareholders and managers (Jensen & Meckling, 1976; Fama & Jensen, 1983; Jensen, 1986, p.323; Rumelt, Schendel & Teece, 1991, p.15). In providing an analysis of these conflicting relationships, agency theory assumes that human beings are rational, self-interested and opportunistic and therefore managers will seek to maximise their own interests even at the expense of the shareholders (Fama & Jensen, 1983; Hoskisson & Turk, 1990 p.462; Hoskisson et al., 1999, pp.434, 435). Eisenhardt (1989, p.58-59) includes the problem of risk sharing in the domain of agency theory, as the differing goals of shareholders and managers may arise as they have different attitudes toward risk. Their willingness to accept risk can then affect the choice of action or contract by the managers.

Focused at the level of the firm or organisation as opposed to an industry level emphasis (Jensen & Meckling, 1976; Fama 1980; Hoskisson & Hitt, 1990; Hoskisson et al., 1999, p.433), agency theory has developed in two branches, with the corporate control branch of the agency literature being the most relevant to strategic management (Eisenhardt, 1989; Rumelt, Schendel & Teece, 1991, p.15). The corporate control agency literature is primarily concerned with the overall governance structure of the firm; including theories related to debt, leverage, diversification and takeovers. A key focus has been conflicts of interest between managers and shareholders in organisations where there is substantial free cash flow (Jensen 1986; Eisenhardt, 1989; Hoskisson & Turk 1990; Hoskisson & Hitt, 1990). This focus has greater relevance in a private business environment than in the context of the public sector and schools.

Fama and Jensen (1983) also consider agency problems caused by separation of decision and risk bearing functions. They hypothesise that separation of risk bearing from decision management leads to decision systems within firms that separate decision management from decision control. In their analysis, decision management incorporates the initiation and implementation of decisions, and decision control includes the ratification and monitoring of these decisions (Fama & Jensen, 1983, p.303-304). Their in-depth analysis of factors within different firm structures includes a range of private, profit and non-profit structures. Combination or separation of the functions of decision management and decision control may be the more efficient strategy dependent on the type of firm structure. Whilst public sector organisations are not included in this analysis, the decision hierarchies described for complex organisations, where organisational rules are in place to monitor and constrain the decision behaviour of agents, aligns closely with what is observed in the public sector (Fama & Jensen, 1983, p.310).

Whilst school principals have some delegated authority to make decisions regarding management of their school and achievement of the agreed outcomes, there is a corporate governance mechanism in place, which includes the regulatory framework, to limit and control such decisions to ensure alignment with the interests and requirements of the stakeholders. Thus, in the terms of Fama and Jensen’s (1983) hypotheses, the principals are responsible for decision management but not the decision control. This is due to the regulatory framework which provides a decision hierarchy against which decisions are ratified and against which principals’ performance can be monitored. There is a gap in the literature in regard to applying this theory to public sector organisations. Application of agency theory to this instance would predict that school principals will seek to make management decisions that cater to the needs of their individual school and community as opposed to centrally developed policies and procedures as defined in the regulatory framework. This would occur where principals perceive there to be conflict between the desired outcomes for their school and the regulatory requirements. This chapter will explore this prediction in relation to the results of a quantitative study (Trimmer, 2011) and provide some evidence to address whether the theory is applicable in the public sector context.

### Stewardship Theory

In a deviation from agency theory, Davis, Schoorman and Donaldson (1997) suggest that managers are stewards of the firm’s assets. They argue that managers are not motivated by individualistic, opportunistic and self-serving goals, but rather act to achieve greater utility in collective organisational behaviour and thus seek to attain the goals of the organisation. It is the underlying assumptions about the nature of man; the motivations of managers; their identification with and commitment to the goals of the organisation; and the use of power that are the key differences between agency and stewardship theories. According to Hoskisson et al. (1999, p.446) stewardship theory is not in juxtaposition to agency theory; rather its sociological and psychological perspective helps explain some managerial behaviour in addition to agency theory.

Stewardship theory also considers the impact of the organisational and governance structures on the actions of the steward. Here stewardship is facilitated in organisations with structures that facilitate and empower managers by giving them authority and discretion in decision-making. Organisational and governance structures that monitor and control managers are not considered appropriate under the assumptions of behaviour underpinning this model, as they would diminish the motivation and capacity of the steward manager to achieve collective goals (Davis, Schoorman & Donaldson, 1997, p.25).

This theoretical position raises a dilemma in the case of school principal managers under the control of the regulatory framework. The goals and outcomes of schooling for students are likely to be well aligned for both managers and shareholders in this example. Bennett’s (2001) discussion of school effectiveness supports this view. Stewardship theory would therefore predict that empowering managers to be responsible for decision-making would be most effective. In contrast, a highly controlled governance structure that constrains decision-making by school principals would be predicted to cause frustration in these managers, causing them to feel disenfranchised and more inclined to act as an agent than a steward. Feelings of empowerment or disenfranchisement are closely linked to perceptions of risk in decision-making.

**Outcomes of Quantitative Study**

Trimmer (2011) conducted a quantitative study that developed a model of reasoned risk-taking by school principals. The model in Figure 1 was used to test hypotheses related to principals’ perceptions of the governance mechanism of the regulatory framework, the experience of individual principals and the characteristics of key stakeholders within the school community. Data was collected through the survey of a stratified random sample of principals in 253 Western Australian public schools. The questionnaire included measures of both attitude and behaviour of principals. The survey data was analysed using Rasch modeling and each construct in the model explored with factor analysis. Finally the model was analysed using Partial Least Square (PLS) based structural equation modeling.

Regulatory Framework Governance Mechanism

Compliance

Mechanism

Educative

Mechanism

Experience

Reasoned

Risk-taking

in

Decision-making

Stakeholder

Characteristics

H1

+

H2

H3

H4a

H4b

+

+

-

H5

Figure 1: Research Model

**Method**

Rasch analysis (Rasch, 1960/1980; Lunz & Linacre, 1998; Andrich, 1988 & 1989) was the methodology used to examine the psychometric properties of the questionnaire data. The procedure involves scaling the results of principals on each item in the questionnaire relative to their responses on the other items. The procedure for analysing differential performance uses the principles of latent trait theory. The model requires that there is a single latent trait which governs the responses of all persons to all items. In this study this trait would be reasoned risk-taking in decision-making. This component of the analysis aimed to produce a measurement scale of the attitudes and behaviours of school principals towards risk-taking in decision-making.

In this analysis item thresholds were calculated. For the purpose of refining the measurement items the thresholds were scrutinised for items with disordered thresholds. Identified items were discarded from further analysis as the existence of disordered thresholds indicates that the items were not operating logically or consistently in regard to responses provided on the Likert scale. Data from the items with ordered thresholds were retained for further analysis. Response category curves showed inconsistent use of response categories for a number of items. Closer scrutiny of the category response frequencies for these items showed that these items were poorly targeted for this group of respondents, with all or most respondents selecting only the two categories at one end of the Likert scale. As a consequence these items failed to adequately discriminate between respondents. The retained items were subsequently examined for high residuals and Chi Square probability. The individual item-fit statistics also showed that the majority of items, both attitudinal and behavioural, fit the model.

The questionnaires formed a fair measure of the trait reasoned risk-taking in decision-making for this group of principals. The difficulty level estimates of the items ranged from –3.901 to 4.523, whereas the attitude level estimates for the principals ranged from –2.71 to 1.201. For most accurate measurement of persons on a trait, item difficulty should be matched as closely as possible to the person’s attitude levels as the standard errors of measurement are least in this case. Through this analysis eleven items on the questionnaire were discarded from further analysis as misfitting the model.

An exploratory factor analysis was then conducted for the items comprising each of the constructs in the hypothesised model. The factor analysis was undertaken to assist in further data reduction, following removal of misfitting and illogical items through the Rasch analysis. Exploratory factor analysis was conducted as this approach is deemed appropriate when seeking to determine the number of underlying factors that need to be retained to reproduce the observed correlation matrix (Heck, 1998, pp.178-179). Heck indicates that exploratory factor analysis is particularly useful, and preferable to confirmatory analysis, when the researcher believes there is an underlying set of theoretical relationships but is not sure whether these underlying factors are well measured by the items. Following the factor analysis a further 15 items were deleted to provide a parsimonious group of items that loaded highly and were representative of the underlying constructs.

Finallly, PLS structural equation modeling was conducted to analyse the model with the items identified as misfitting or unreliable by Rasch analysis or the factor analysis deleted. Initially the analysis assessed the relative contribution of each of constructs to the model. The reliability of each item was assessed by examining the loadings of each measure. In effect, this is a measure of the correlation of each item with its respective construct. Barclay, Thompson & Higgins (1995, p.295) indicate that items with loadings of 0.7 or greater are acceptable. However, other authors argue that a lower criterion of 0.3 (Quaddus, 2004) or 0.4 (Igbaria, 1997; Hair, 2006) is acceptable. A minimum value of 0.4 was used as the criterion to accept the reliability of individual items for the reflective variables. The results showed a number of items that did not meet this criterion and these items were therefore dropped from the next iteration of the analysis in order to improve the reliability of retained items. In this phase of analysis the number of observed variables was reduced from 37 in the initial model to 29 in the final model. The reliability of each of the reflective variables in the revised model was found to have a loading of more than 0.4 and the retained items were considered to support the convergent validity requirements for the model because they showed significant t-values.

**Results**

Five hypotheses were developed to address the research questions and analyse the model presented in Figure 1.

**Hypothesis 1:** More experienced principals will tend to engage in risk-taking behaviour more frequently than new or acting principals.

**Hypothesis 2:** Where school principals interpret the governance mechanism of the regulatory framework as a compliance mechanism there will be a negative relationship to reasoned risk-taking.

**Hypothesis 3:** Where school principals interpret the governance mechanism of the regulatory framework as an educative mechanism there will be a positive relationship to reasoned risk-taking.

**Hypothesis 4:** There will be an interaction effect between perception of the regulatory framework and experience. **(a)** The relationship between the compliance mechanism and reasoned risk-taking is moderated negatively by the experience of principals.

**(b)** The relationship between the educative mechanism and reasoned risk-taking is moderated positively by the experience of principals.

**Hypothesis 5:** Principals of schools with a high degree of uniqueness in the characteristics of key stakeholders within the communities will be more likely to make decisions involving reasoned risk-taking.

The study identified a range of factors impacting on risk-taking in decision-making by school principals. The three hypotheses H1, H2 and H5, were supported by all of the analyses conducted within the study.

In regard to experience of principals, both the level and type of experience of principals were found to have a significant influence with secondary principals most likely to engage in risk-taking in decision-making. This finding raises important questions with regard to Department governance structures and the devolution of control for decision-making and the accountability for outcomes in schools.

In relation to governance, the study showed that principals’ perceptions of the purpose of the governance mechanism of the regulatory framework, as either a compliance or educative mechanism, impacts on risk-taking in decision-making. This was also mediated by the level and type of experience of the principal. This finding has implications for organisations with governance frameworks based on a compliance approach where control is held within a centralised hierarchical structure.

In relation to stakeholder characteristics, the study found that principals’ of schools with a high degree of uniqueness were significantly more likely to make decisions involving reasoned risk-taking. This finding has implications for decision-makers in contexts involving Indigenous populations or those with large proportions of migrants or refugees where there are differences in cultures and community needs and where English is a second language. Geographical location is also a consideration and the remote nature of communities where schooling and other public services are delivered is likely to impact on decision-making in those communities.

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## Discussion in Relation to Business Theory

This quantitative study identified a range of factors impacting on risk-taking in decision-making by school principals. The results showed that both the level and type of experience of principals had significant influence on risk-taking in decision-making, with implications for governance structures and the devolution of control for decision-making and accountability for outcomes in schools. Principals’ perceptions of the purpose of the governance mechanism were also significant and were mediated by their levels and type of experience. These results are interpreted using agency and stewardship theory to explore enhanced meaning of principals’ decision-making within a governance framework based on a compliance approach through a centralised hierarchical structure.

The organisational functions of decision management and decision control are quite separate in the structure of the Department of Education and Training in Western Australia. Principals in individual schools have been responsible for decision management, which includes the initiation and implementation of decisions on a daily basis. However, decision control, which includes the ratification and monitoring of these decisions, is the responsibility of district and central offices. This structure reflects that described by Fama and Jensen (1983, p.310) for complex organisations, where organisational rules are in place to monitor and constrain the decision behaviour of agents.

The Department has a hierarchical administrative structure with an administrative centre that controls the development of the policies and procedures that make up the governance mechanism of the regulatory framework. This governance framework was compulsory for principals to use in their local decision-making processes in their individual schools at the time of this study. This strategic management structure is such that it reflects a business that can be interpreted from the perspective of agency theory (Jensen & Meckling, 1976; Fama & Jensen 1983; Jensen, 1986, p.323; Rumelt, Schendel & Teece, 1991, p.15). The attitudes and behaviour of principals as measured through the administration of the questionnaire in this study and the support for Hypotheses 1, 2 and 5 above provides some evidence that principals will take risks when they perceive that the requirements of the regulatory framework will constrain the outcomes they seek to attain for the students in their school.

In terms of agency theory, as espoused by Fama and Jensen (1983), the principals were responsible for decision management but not the decision control. There was a decision hierarchy, the regulatory framework, in place against which decisions were ratified and against which principals’ performance was monitored by district directors on behalf of the Director General. The results of this study are consistent with the expectations of agency theory. For example, through support for Hypothesis 5, school principals made management decisions that took account of the needs of their individual school and community. It is likely that in circumstances where principals perceived a conflict between the desired outcomes for their school and the requirements of the regulatory framework they were prepared to take risks in decision-making.

The support for Hypothesis 2 implies that principals behaved in ways that were consistent with the overall goals of the organisation. It appears that they may undertake risks in decision-making that make them non-compliant only in circumstances where policies and procedures were constraining them from achieving these broader collective organisational goals or when efficient decision outcomes were hampered by complex bureaucratic processes. Contrary to the assumption of agency theory that managers will behave in ways that are rational, self-interested and opportunistic so as to maximise their own interests (Fama & Jensen, 1983; Hoskisson & Turk, 1990, p.462; Hoskisson et al., 1999, pp.434, 435), this behaviour can be interpreted as aligning with the description of stewardship theory (Davis, Schoorman & Donaldson, 1997; Hoskisson et al., 1999, p.446). According to this theory, the efficiency and effectiveness of principals’ decision-making in schools would be enhanced by the provision of management structures that empowered principals by giving them greater authority and discretion in decision-making. This also aligns with the position of Eisenhardt (1989, p.60) who proposed that when contracts are outcomes based the manager is more likely to align behaviour and decisions with the interests of the shareholder. The results support these views, with principals who had a compliance view of the governance mechanism of the regulatory framework behaving more like agents and taking less risks in decision-making. In contrast, principals with significant experience, who felt empowered to take greater risks, acted more like stewards.

The unpredictability and complexity of the decision-making environment within schools restricts the capacity of principals to consider all possible solutions. The factors identified by Goodwin and Wright (2004, p.23) reflect the types of considerations raised by principals in giving explanations of their decision-making during interviews. In many instances decisions have to be made quickly, with a view to achieving an efficient outcome that has minimal impact on other stakeholders. The experience of the principal in making similar decisions or their awareness of similar decisions made by others previously can assist in this process. Consideration of such factors may frequently result in a trade-off (Soane & Chmiel, 2005). Where time is critical, the evidence is consistent with the possibility that this may take the form of principals’ preference for a pragmatic approach even though this may be contrary to the governance framework. The strong support for Hypothesis 1 and the qualitative data collected support this possibility. For example, principals cited situations (Trimmer, 2003a, p.33) where “sick students whose parent/carer could not be contacted being transported by the school vehicle to medical attention” or where “a student whose parent/carer did not arrive to pick up a child after several hours being transported home after repeated attempts to contact the parent”. Principals also traded off accuracy and compliance in order to expend less effort in the situations where they decided to forgo the open and effective competition policy. This policy required three quotes on purchases from 0-$1000 for many of the small purchases made by schools. Principals indicated that this was time consuming and inefficient (Trimmer, 2003a, p.31). Another trade-off that was in evidence in interviews, was for principals with a compliance view of the regulatory framework to select a strategy and outcome that could be justified publicly. There were a range of examples given where participation in community events or activities were cancelled due to concerns with the schools’ capacity to comply with governance requirements for excursions (Trimmer, 2003a, p.31). This tendency for principals to curtail high risk programs due to cumbersome and time consuming procedures has also been noted by Starr (2008, p.5) and is consistent with agency theory.

**Conclusion**

This chapter provides an extension of the use of theory in the extant literature to the public sector context through its application to decision-making in public schools. Whilst the results were consistent with agency theory in that management decisions took account of needs of individual schools and the community, there was conflict with the assumption of agency theory as the managers did not make self-interested or opportunistic decisions. Rather the results supported stewardship theory with managers behaving in ways that were consistent with the overall goals of the organisation and the interests of the stakeholders.

The findings of this study are consistent with behavioural models of risk-taking in decision-making. The construct *Experience* in this study included aspects related to whether appointment to the position of principal was substantive; length of time in the role; the relevance of experience to current decision-making situations; past success in taking risk in making decisions; past negative experience and personal tendency to risk aversion; and type of experience such as primary or secondary school. Each of these factors was identified in the factor analysis and the composite formative construct of experience was found to impact significantly on risk-taking in decision-making. In contrast, no effect was found for other contextual factors such as school size and in previous research these factors have not been generally found to exert any important influence over principal leadership in school settings (Cheng in Bush et al., 1999).

Experienced principals were more likely to take risks in decision-making to achieve desired outcomes. This aligns with the literature on effective leadership in schools. For example, Mendez-Morse (1992) identified willingness to take risks as one of the characteristics common to successful leaders of educational change. Similarly, risk-taking was identified by Fullan (1993, pp.26-27) and Caldwell (2006, p.193) as a significant factor in educational leadership.

The contrast in risk-taking behaviour required for management and leadership decision-making was highlighted by Silcox (2003, p.10) in the context of school renewal. Silcox indicated that management required low risk decisions based on established procedures, whereas leadership required higher risk decisions to find solutions in uncertain situations. This distinction is useful in considering why experienced principals take more risks, and also why principals with a compliance view of the governance mechanism take less risks in decision-making. Less experienced principals with a compliance view of the framework may be making low risk decisions that focus on management processes within the school. More experienced principals, on the other hand, are able to make such decisions routinely and have greater capacity to undertake school renewal and educational change agendas within their schools. Decisions related to these high level educational outcomes are not routine and hence require greater risk in determining potential strategies in the decision-making process.

The findings of the hypothesis testing in this study showed that a principal’s view of the purpose of the governance structure, including the regulatory framework, impacted on their risk-taking in decision-making. This can be problematic where it restricts decision-making that may be in the best interest of outcomes for students and also where it exposes principals when they make a professional decision to take a risk and act outside mandatory policy requirements. To avoid this dilemma the establishment of mandatory policy, applicable to all schools, should be minimised. Where it is created, policy and procedures should be developed that is enabling rather than restrictive. This may be achieved by setting up a structure of common goals or outcomes to be achieved rather than prescribing set procedures. Instead of mandatory policy, non-mandatory guidelines could be developed to provide support and guidance for achievement of these common goals. This study clearly demonstrated the need for such guidance for new and acting principals who do not have the benefit of experience. However, principals with experience, and in particular secondary school principals and principals working in schools with unique characteristics, require flexibility in establishing their own mechanisms and processes to achieve the set goals. Such an approach would enhance the capacity of schools to manage their own affairs and provide opportunities for schools to make decisions that take account of the unique context of their own students and communities. In 2010 the Department provided greater flexibility in governance to 34 Independent Public Schools. This initiative has since been extended to a broader group of schools with 264 schools operating in 2014 with significantly increased autonomy. This is one third of all public schools in Western Australia. Whilst the success of the success of this initiative is currently being evaluated, it appears to be an initiative that will assist the schools involved to have greater capacity and flexibility to undertake decision-making specific to their identified school needs without the risks of non-compliance with centralised policy. It will be of interest to compare whether these schools make decisions that are significantly different from those who remain constrained by policy. For such an approach to be successful, it will be necessary for the Department to provide ongoing professional development and put support strategies in place for decision-making for new and acting principals who do not have the benefit of experience to call upon in making their decisions. This may involve opportunities for experienced principals to share strategies and experience they have gained in a range of circumstances.

## References

Andrich, D. (1988). *Rasch models for measurement*. Vol. 07-001, *Sage University Papers Series on Quantitative Applications in the Social Sciences*. Beverley Hill: Sage Publications.

Andrich, D. (1989). Distinctions between assumptions and requirements in measurement in the social sciences. In *Mathematical and Theoretical Systems*, edited by J. A. Keats, R. Taft, R. A. Heath and S. A. Lovebond. B V North Holland: Elsevier Scinece Publishers.

Barclay, D.W., Thompson, R. and Higgins, C.A. (1995). The partial least squares (PLS) approach to causal modeling, personal computer adoption and use as an illustration. *Technology Studies: Special Issue on Research Methodology* 2 (2):285-324.

Bush, T., Bell, L., Bolam, R., Glatter, R. and Ribbins, P. (eds.) (1999). *Educational management: redefining theory, policy and practice*. London: Paul Chapman Publishing.

Caldwell, B.J. (2006). *Re-imagining educational leadership*. Camberwell, Victoria: ACER Press.

Carpenter, M. A., Pollock, T. G. and Leary, M.M. (2003). Testing a model of reasoned risk-taking: governance, the experience of principals and agents, and global strategy in high-technology IPO firms. *Strategic Management Journal* 24, 803-820.

Carpenter, M.A., and Westphal, J.D. (2001). The strategic context of external network ties: Examining the impact of director appointments on board involvement in strategic decision making. *Academy of Management Journal* 44 (4), 639-660.

Cooke, S., and Slack, N. (1991). *Making management decisions*. 2nd ed. London: Prentice Hall.

Davis, J.H., Schoorman, F.D., and Donaldson, L. (1997). Toward a stewardship theory of management. *Academy of Management. The Academy of Management Review* 22 (1), 20-44.

Department of Education, Government of Western Australia. (2014). *Independent public schools*. Perth, Australia: Author. Retrieved March 5, 2014, from http://www.det.wa.edu.au/independentpublicschools/detcms/portal/

Department of Education and Training. (2004). *Regulatory framework* [Web site and CD ROM]. Department of Education and Training May 2004 [cited 2004].

Eisenhardt, K.M. (1989). Agency theory: An assessment and review. *Academy of Management. The Academy of Management Review* 14 (1), 57-74.

Fama, E.F. (1980). Agency problems and the theory of the firm. *The Journal of Political Economy* 88 (2):288-307.

Fama, E.F, and Jensen, M. C. (1983). Separation of ownership and control. *Journal of Law and Economics* 26 (2), 301-325.

Fullan, M. (1993). *Change forces probing the depths of educational reform*. London: The Falmer Press.

Goodwin, P., and Wright, G. (2004). *Decision analysis for management judgement*. 3rd ed. West Sussex: John Wiley & Sons.

Hair, J.F. Jr, Black, W.C., Babin, B.J., Anderson, R.E. and Tatham, R.L. (2006). *Multivariate Data Analysis*. Sixth ed. New Jersey: Pearson Education International.

Heck, R.H. (1998). Factor analysis: Exploratory and confirmatory approaches. In *Modern Methods for Business Research*, edited by G. A. Marcoulides. New Jersey: Lawrence Erlbaum Associates.

Hoskisson, R.E., and Hitt, M.A. (1990). Antecedents and performance outcomes of diversification: A review and critique of theoretical perspectives. *Journal of Management* 16 (2), 461-509.

Hoskisson, R.E., Hitt, M.A., Wan, W.P. and Yiu, D. (1999). Theory and research in strategic management: Swings of a pendulum. *Journal of Management* 25 (3), 417-456.

Hoskisson, R.E., and Turk, T.A. (1990). Corporate restructuring: Governance and control limits of the internal capital market. *Academy of Management Review* 15 (3), 459-477.

Hoy, W.K., and Miskel, C.G. (2005). *Educational administration: Theory, research and practice*. seventh ed. New York: McGraw Hill.

Igbaria, M., Zinatelli, N., Cragg, P. and Cavaye, Angele. (1997). Personal computing acceptance factors in small firms: A structural equation model. *MIS Quarterly* 21 (3), 279-302.

Jensen, M.C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *The American Economic Review* 76 (2), 323-329.

Jensen, M.C., and Meckling, W.H. (1976). Theory of the firm: Managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics* 3:305-360.

Lunz, M.E., and Linacre, J.M. (1998). Measurement designs using multifacet Rasch modeling. In *Modern Methods for Business Research*, edited by G. A. Marcoulides. New Jersey: Lawrence Erlbaum Associates.

Mendez-Morse, S. (1992). *Leadership characteristics that facilitate school change*. USA: Southwest Educational Development Laboratory.

Nicholson, N., Soane, E., Fenton-O'Creevy, M. and Willman, P. (2005). Personality and domain-specific risk taking. *Journal of Risk Research* 8 (2), 157-176.

Petrakis, P E. (2005). Risk perception, risk propensity and entrepreneurial behaviour: The Greek case. *The Journal of American Academy of Business* 7 (1), 233-242.

Quaddus, M. (2004). A partial least squares approach to modelling electronic commerce success in Australia. In *7th International Conference on Computer and Information Technology*. Dhaka, Bangladesh.

Rasch, G. (1960/1980). *Probabilistic models for some intelligence and attainment tests*. Chicago: University of Chicago Press.

Rumelt, R.P., Schendel, D. and Teece, D.J. (1991). Strategic management and economics. *Strategic Management Journal* 12, 5-29.

Senge, P. (1990). *The fifth discipline*. New York: Doubleday.

Silcox, S.B. (2003). Something about school renewal. PhD, School of Education, Curtin University of Technology, Perth.

Soane, E., and Chmiel, N. (2005). Are risk preferences consistent? The influence of decision domain and personality. *Personality and Individual Differences* 38, 1781-1791.

Starr, K. (2008). Whose risk? 'Managing' risk in the principalship. Paper read at *Australian Association for Research in Education*. Brisbane.

Trimmer, K. (2011). *Non-compliance by school principals: The effects of experience, stakeholder characteristics and governance mechanisms on reasoned risk-taking in decision-making.* Curtin University, Perth, Western Australia.

Trimmer, K. (2003). Review of the regulatory framework: Education Department of Western Australia.

Wiseman, R.M., and Gomez-Mejia, L.R. (1998). A behavioral agency model of managerial risk taking. *Academy of Management Review* 23 (1), 133-153.

Wiseman, R.M, Gomez-Mejia, L.R. and Fugate, M. (2000). Rethinking compensation risk. In *Compensation in Organizations*, edited by S. L. Rynes and B. Gerhart. San Francisco: Josey-Bass.