

Case Study

Forging partnerships between optometrists and ergonomists to improve visual comfort and productivity in the workplace

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Abstract. Ergonomists and optometrists often have mutual clients/patients with complex visual needs in the workplace but communication between the professionals is usually indirect through the client/patient. This paper describes a joint professional development meeting between optometrists and ergonomists in Canberra, Australia, which included a discussion to explore how to improve communication between the two professions. Optometrists and ergonomists reported they would prefer more information before conducting assessments and providing advice. Vision screening forms commonly in use for computer workers were viewed as inadequate to meet these needs. Communication between the two professions was hampered by absence of contact details of the optometrist/ergonomist, perceptions that the other profession is too busy to talk, privacy considerations in sharing information and funding issues for shared care arrangements. There are opportunities for increasing awareness of good vision in workplaces. Communication between optometrists and ergonomists can be improved by developing information-sharing documents relevant to modern workplaces.

Keywords: Australia, computers, professional collaboration, vision screening, visual ergonomics

1. Introduction

When computers were introduced into workplaces in the 1970s and 1980s, there was grave concern that computer users would have an increased incidence of ocular disease and vision problems [1]. In Australia, computer operators were required to undergo regular vision screening examinations to ensure their vision was adequate and there was an absence of eye disease (see Table 1). In the mid-1990s it became clear that computers were not the health risk first thought [2] and vision screening for computer users was re-evaluated and confined to the assessment of visual function (see Table 1). Recommendations for vision screening were later revised in the mid-2000s as necessary only for

workers who performed tasks which were “very” visually demanding, when vision was safety critical and if there was the risk of eye injury [1,3]. This led to published recommendations which place responsibility for visual comfort and efficiency on the individual, e.g. “*Computer users concerned about their vision or spectacles should seek advice from their medical specialist*” [4]. This recommendation has economic advantages for the workplace [1] since eye examinations initiated by an individual are eligible for a government (Medicare) rebate whereas eye examinations initiated by an employer are not [5]. Despite this, anecdotal reports indicate that vision screening forms still circulate within Australian workplaces, including the early design forms which require assessment of ocular health.

Table 1
Components included on vision screening examination forms in Australia during the 1980s and 1990s

Category	Component	1980s	1990s
Past medical history	Current or past visual problems, ocular appliances which are used	yes	yes
Visual function	Visual acuity (distance, 6 m)	yes	yes
	Visual acuity (intermediate, 70 cm)	yes	yes
	Visual acuity (near, 40 cm)	yes	yes
	Oculomotor coordination (horizontal and vertical heterophoria)	yes	yes
Ocular health	Colour vision	yes	yes
	Ophthalmoscopy	yes	no
	Slit lamp	yes	no

The Australian Bureau of Statistics reports that in 2011, 38% of the Australian working age population (15–64 years) was aged more than 45 years [6]. This is the age at which presbyopia (needing spectacles for near tasks) typically manifests. Since many computer workstations may include multiple size computer displays mounted at different viewing distances and heights, the optometrist is faced with a challenge to prescribe spectacle lenses which allow comfortable viewing postures for presbyopic workers e.g., a presbyopic worker prescribed general purpose progressive lenses or bifocals may need to tip their head back to see through the reading portion of the lens. This can affect productivity and may contribute to neck and shoulder discomfort [7–9]. Since ergonomists provide advice on workstation design and arrangement, it is feasible that they could furnish optometrists with details about these workstations which would facilitate the accurate prescription of computer eyewear. A model for this was proposed by Long and Helland [10]. However, the onus on computer users to initiate their own eye examinations has weakened links between workplaces and optometrist. Accurate prescribing of eyewear is usually contingent on the optometrist eliciting sufficient correct information from the patient during an eye examination.

Optometrists working together with other professions to ensure good visual outcomes in the workplace is not a new concept [7,11] and there is evidence that informal communication channels do exist between ergonomists and optometrists [10,12]. It has been suggested that partnerships can be strengthened between optometrists and ergonomists by actively including optometrists in workplace problem solving and by inviting optometrists to ergonomics professional development events and conferences [12].

This paper describes a joint professional development event between optometrists and ergonomists. The aim of this event was to provide an opportunity for optometrists and ergonomists to meet each other with a view to developing working partnerships, sharing

knowledge and discussing how the two professions can work together to improve patient/client visual outcomes in the workplace. It provides a case example for initiating discussion between the two professional groups at a local level and offers insight into issues which could be more broadly addressed to improve communication between these two professional groups.

2. Case study

2.1. Overview

A joint professional development event with optometrists and ergonomists was held on the 29th May 2012 in Canberra, Australia. Canberra is the capital city of Australia and is located within the Australian Capital Territory (ACT). The population of the ACT in 2011 was 367, 753 persons and represents 1.6% of Australia's total population. Approximately 34% of the ACT population is aged 45–64 years [6].

The professional development event was the initiative of the Human Factors and Ergonomics Society of Australia (HFESA) ACT Branch, which has approximately 40 individual members. Ergonomists were invited to attend through email advertisements sent by the HFESA to its members. Email invitations were sent to approximately 90 optometrists in the ACT by the Optometrists Association of Australia and advertising flyers were personally delivered to optometry practices by HFESA members. Optometrists are required to accrue points for participating in professional development activities each year [13], so professional development points were offered as an incentive to attend.

The author (JL) was invited to give the presentation as she works as an optometrist and ergonomist. The evening commenced with a 40 minute presentation by JL to the combined group of optometrists and ergonomists ($n = 25$ attendees in total, of which $n = 7$ optometrists). This included a job description of op-

tometrists and ergonomists and an overview of current guidelines and recommendations for computer workstations. After a short supper break, all attendees were invited to participate in a 1 hour facilitated discussion led by JL ($n = 8$ ergonomists, $n = 7$ optometrists). Ethics approval was obtained through the University of New South Wales for the facilitated discussion and all discussion participants provided written permission to participate.

During the discussion, attendees were divided into 3 groups of 5 participants (each group with 2 or 3 optometrists). A set of questions about the feasibility of working partnerships (question set 1) (see Table 2) was given for 10 minute discussion during which time each group recorded their thoughts on paper. The groups were reconvened for a large group discussion and the main themes and outcomes of the discussion were recorded by a scribe onto paper attached to an easel. This process was repeated for question set 2 (overcoming barriers to working partnerships). At the conclusion of the evening, the main findings were summarised and confirmed as “agreed” by the group.

The written results were categorised into themes by JL. An audit of the categorisation was conducted by JL six months after the initial analysis to check for consistency.

2.2. Outcome of discussion: Feasibility of working partnerships

All optometrist participants reported that they have provided work-related eye examinations, including prescribing task-specific spectacles and completing vision screening forms for computer users. All ergonomist participants have had clients with vision related issues but the majority have only provided informal referrals to optometrists e.g. recommend their client has an eye examination without providing formal documentation for the optometrist.

One ergonomist reported attempts to communicate with a client's optometrist by providing workstation measurements and photographs but did not receive feedback from the optometrist. One optometrist recalled receiving an ergonomics report and photographs of a workstation and found this helpful for determining their patient's visual needs. It is unknown if the optometrist and ergonomist were referring to a mutual client.

There was general agreement that a shared care collaborative approach is useful and feasible. Optometrists indicated that they would like to have more

details about the work environment before prescribing spectacles e.g. workstation dimensions, location of computer monitors, but had limited time to read lengthy ergonomics reports. Ergonomists indicated that they would like more information about the type of spectacle lenses their clients were wearing (e.g. general purpose progressive lenses, bifocals) and visual ergonomics (e.g. suitable viewing distances for tasks) and would like the opportunity to clarify information with optometrists when necessary.

2.3. Outcome of discussion: Overcoming barriers to working partnerships

An absence of contact details for the other professional was cited as a barrier to communication by both optometrists and ergonomists. There was also a perception among the ergonomists that optometrists were difficult to contact as they are usually with a patient in the consultation room. Vision screening forms currently in use were viewed as inadequate and irrelevant as they provide medical information (i.e. whether the worker passes/fails the visual acuity requirement) but do not indicate why this is important to the workplace (e.g. should the worker be prescribed task specific spectacles?). There was also confusion among participants as to whether Australian privacy legislation permits sharing of health information between optometrists and ergonomists and whether formal permission from the client must first be obtained before communication commences.

It was the view of the group that these barriers could be overcome by redeveloping the vision screening forms designed in the 1980s and to use this as a communication tool between the workplace and optometrist. This would overcome privacy concerns since there is implied consent if the patient takes the form to the optometrist and then returns it to their workplace. Suggestions to facilitate better communication between optometrists and the workplace include incorporating within the form:

- A section to be completed by the workplace/ergonomist which provides succinct information about the workstation arrangement and task demands, as proposed by Long and Helland [10]. This could include information about the number, size and location of computer displays at the workstation relative to the worker's eyes, the font size used within the display (in millimetres), the amount of time spent viewing the various displays, and whether specific spectacle lens designs are required e.g. tinted lenses, safety spectacles [10].

Table 2
Questions used to facilitate discussion about working partnerships between optometrists and ergonomists

Question set	Questions for discussion
1. Feasibility	Have any optometrists ever worked with ergonomists? Have any ergonomists ever worked with optometrists? What did you find worked well? What would you like to see done differently in future collaborations?
2. Overcoming barriers	It seems sensible for optometrists and ergonomists to work together since we frequently have mutual clients. However, this is the exception rather than the rule. What do you perceive as a barrier to these working relationships? How do you think this could be overcome?

- A section to be completed by the optometrist which indicates whether task-specific spectacles have been prescribed.
- Facility for indicating other visual comfort issues e.g. if the worker has dry eye syndrome or if the workplace is a low humidity environment.
- Provision for recording the name and telephone number of the optometrist and the workplace contact person (e.g. ergonomist).

Both groups voiced concern that providing specific workstation information to optometrists may be met with resistance as the workplace would then be responsible for the cost of eye examinations and task-specific spectacles. Some participants also foresaw that patients/clients might not accept shared-care arrangements due to expectations that one professional (i.e. the optometrist or the ergonomist) should be able to solve problems alone.

There was consensus that these barriers could be overcome by increasing awareness of the importance of good vision at work. Strategies suggested for the workplace include:

- Providing workers with more basic education about visual ergonomics in the workplace e.g. the correct set-up for computer displays.
- Encouraging workers to seek additional ergonomics advice if task demands or visual demands change e.g. when workstation equipment is upgraded.
- Informing ergonomists about the different types of spectacle lenses for presbyopia so that they can discuss the benefits of task-specific spectacles with their client before their client attends an eye examination.

Strategies suggested for optometrists include:

- Discussing workplace visual demands with patients during an eye examination.
- Sending optometry patients pre-appointment surveys which ask them to measure their viewing distances for tasks and to bring this information to their eye examination.

2.4. Postscript

Ergonomists and optometrists gave positive feedback about the joint professional development meeting. Since then, some of the optometrists and ergonomists have remained in contact and initiated a joint project to design a vision screening form for computer workers which includes some of the modifications described in section 2.3. This was discussed during the evening but was not formally listed as an action item. It is anticipated that when the forms are developed that they may be trialled by the ergonomists in their workplaces.

3. Discussion

This case study illustrates a successful joint professional development event between optometrists and ergonomists in Canberra, Australia. The objective of the event was to provide an opportunity for optometrists and ergonomists to network and discuss ways to improve patient/client visual outcomes in the workplace. The results presented in this paper were obtained from a small group of practitioners in one region of Australia and these opinions might not represent the opinion of all Australian optometrists and ergonomists. Nevertheless, they do provide insight into some of the issues perceived as important for developing working partnerships between the two professions.

Since May 2012, the two groups have commenced working on a new vision screening form. This is different to the health surveillance tool originally developed in the 1980s and declared redundant by Cole [1]. Instead, it provides a mechanism for communicating information about computer workstations to optometrists to ensure that appropriate spectacles are prescribed, particularly for presbyopic workers. The fact that the group have pursued this project of their own volition indicates a perceived need for formal communication between optometrists and the workplace, at least

within this geographical location. It is possible that other areas within Australia (and internationally) have similar needs. Therefore, this type of tool requires further evaluation at a national/international level and for use with a range of different work environments e.g., offices, industrial control rooms.

Although ergonomists and optometrists may wish to work together, the success of these partnerships is dependent upon acceptance within workplaces. Modern computer workstations are increasing in complexity and could be classified as “very” visually demanding under the definition proposed by Cole [1]. This has further relevance for Australia’s ageing population [14] as presbyopic workers are more likely to require task-specific spectacles for use at these workstations [10]. Working partnerships might be easy to implement in Australian workplaces where spectacles are already partially subsidised as an “employee benefit”. However, other workplaces may resist formal paid arrangements since computers are not solely a work item e.g. workers may also use computers at home or for other activities [15]. Discussion with employers and employer groups is required to understand the best strategies for implementing formal working partnerships between optometrists and ergonomists in workplaces.

There was confusion among participants about the interpretation of Australian privacy legislation for shared-care arrangements. Shared-care is a model promoted within other facets of ophthalmic healthcare e.g. management of diabetes [16] and glaucoma [17]. In these circumstances it is not essential for an optometrist to obtain formal patient consent to release medical information e.g. when referring a patient to a specialist or participating in case conferencing for multidisciplinary team care [18]. Formal patient consent is required when an optometrist releases patient information to workplaces e.g. vision screening results [19]. Therefore, if a workplace funds multidisciplinary teams of ergonomists and optometrists, then patient consent will be required since information is likely to be released to the workplace. This interpretation of the legislation needs to be clarified and communicated to both the optometry and the ergonomics professions.

If a new tool is developed to assist communication between optometrists and ergonomists, then it would be appropriate to teach its use to optometry and ergonomics students since interdisciplinary communication is a component of the competency standards for both professions [20,21]. In addition to didactic in-

struction, students could be provided with case studies which illustrate how working with other professionals can improve patient/client outcomes for patients/clients with relatively simple [22] and complex visual needs [23,24]. They could also gain practical experience through integrated care placements, as has been successfully demonstrated for students in other allied healthcare disciplines [25,26]. This has the potential for establishing good working relationships between the professions as well as improved visual outcomes for workers.

4. Summary

A joint professional development event was held with optometrists and ergonomists in Canberra, Australia. The purpose of this event was to explore how to improve communication between optometrists and ergonomists when they have a mutual client/patient. Working partnerships were viewed as feasible but communication could be improved by developing formal communication tools (e.g. information-sharing documents) and increasing awareness of good vision in workplaces. Further discussion with employer groups may be necessary to understand how to implement formal communication between workplaces and optometrists. The results presented in this paper are important for visual comfort and productivity, particularly in view of the large number of older-age workers who require task-specific spectacles for viewing computer displays.

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