'RPLQLFDQ 8QLYHUVLW\ RI &DO

*UDGXDWH (GXFDWLRQ 'HJUHH 3
*HQHUDO DQG $GPLVVLRQV ,QI
$FDGHPLF &DWDORJ ¬

*UDGXDWH (GXFDWLRQ 'HJUHH 3URJUI

%LRORJLFDO 6FLHQFHV 06

7KH 0DVWHU RI 6FLHQFH LQ %LRORJLFDO 6FLHQFHV LV D UHVHDUFK LQWHQVLYH SU
RI RXU WLPHV 7KH SURJUDP V JRDO LV WR WUDLQ VWXGHQWV IRU VFLHQWLILF FDU
SURFHVV DV ZHOO DV GHWHFWLQJ SUHYHQWLQJ DQG WUHDWLQJ DJH DQG PHWDE

%,2 *UDGXDWH 7HDFKLQJ $VVLVWDQW XQLWV

7KLV FRXUVH SURYLGHV WHDFKLQJ H[SHULHQFH DW WKH JUDGXDWH OHYHO 6WXGH
FDQ LQFOXGH EXW LV QRW OLPLWHG WR VHUYLQJ DV LQVWUXFWRU RI UHFRUG IRU
FRQGXFWLQJ UHYLHZ VHVVLRQV SUHSSLQJ ODEV DQG WXWRULQJ VWXGHQWV

'RPLQLFDQ 0%$ 3URJUDP

'RPLQLFDQ 0%$ &RUH 3URJUDP 5HTXL

0%$		&RQVXOWLQJ IRU (IIHFWLYH &KDQJH /HDGH	
0%$		/HDGLQJ DQG *URZLQJ 6WDUW XSV	

0%$ *OREDO %XVLQHVV (QYLURQPHQW XQLWV

([SORUHV WKH JOREDO FRPSHWLWLYH EXVLQHVV HQYLURQPHQW DQG SURYLGHV VW
PDUNHWSODFH 6WXGHQWV ZRUN LQ WHDPV WR SHUIRUP FDVH DQDO\VHV DQG HYDO
PDMRU JHRJUDSKLF UHJLRQV DQG LQGXVWULHV WKURXJK LQWHUQDWLRQDO EXVLQH
EXVLQHVV HQYLURQPHQW WRSLFV LQFOXGH LQWHUQDWLRQDO WUDGH UHODWLRQV
DFURVV FXOWXUHV DQG HQYLURQPHQWDO VXVWDLQDELOLW\ 6WXGHQWV XVH WKH
H[SORUWLQJ LQWHUQDWLRQDO MRLQW YHQWXUHV VWUDWHJLF DOOLDQFHV DQG IR

0%$ 0DQDJHULDO)LQDQFH XQLWV

)RFXVHV RQ WKH WKHRU\ DQG SUDFWLFH RI ILQDQFLDO GHFLVLRQ PDNLQJ DQG EXL
ILQDQFLQJ SROLFLHV RI WKH ILUP WR HTXLS VWXGHQWV ZLWK GHFLVLRQ PDNLQJ D
IRUHFDVWLQJ WLPH YDOXH RI PRQH\ VHFXULWLHV YDOXDWLRQ ULVN UHWXUQ WU
FDSLWDO EXGJHWLQJ DQG RWKHU SUDFWLFDO LVVXHV DQG SROLF\ GHFLVLRQV WK

0%$ %XVLQHVV $QDO\WLFV DQG 0DUNHWLQJ 5HVHDUFK XQLWV

([DPLQHV PHWKRGV DQG SUDFWLFHV IRU GHVLJQLQJ UHVHDUFK VWUDWHJLHV WR VX
TXDOLWDWLYH DQG TXDQWLWDWLYH UHVHDUFK PHWKRGV WKURXJK GHYHORSLQJ DQ
UHOHYDQW WR D VSHFLILF EXVLQHVV RU LQGXVWU\ 2WKHU FRPPRQ PDUNHWLQJ UH
LQWHUYLHZV DUH H[SORUHG $GGLWLRQDOO\ VWXGHQWV ZLOO JDWKHU YLHZ DQG

0%$ *OREDO &RQVXOWLQJ 3UDFWLFXP XQLWV

7KH *OREDO &RQVXOWLQJ 3UDFWLFXP LV WKH ILQDO FRXUVH RI WKH 0%$ SURJUDP
DQG SHUIRUP JOREDO EXVLQHVV SURMHFWV IRU FOLHQWV LQ D JLYHQ FRXQWU\ 7K
FRXQWU\ LQ ZKLFK WKH ILUP LV ORFDWHG DQG GHYLVH VWUDWHJLF VROXWLRQV D
XWLOL]H WKHLU DGYDQFHG EXVLQHVV VNLOOV DFTXLUHG DQG SUDFWLFHG LQ WKH
VWXGHQWV WUDYHO WRJHWKHU RQ D GD\ LQWHUQDWLRQDO VWXG\ WULS WR PHH
FRQVXOWLQJ SURMHFWV VWXGHQWV VWUHQJWKHQ WKHLU NQRZOHGJH DQG LQVLJK
WHFKQRORJLFDO HQYLURQPHQWDO DQG OHJDO IDFWRUV WKDW LPSDFW DFKLHYLQJ
PDUNHWV

0%$ (PHUJLQJ 0DUNHWV DQG ,QWHUQDWLRQDO &RPSHWLWLYHQHVV X

&RPSUHKHQVLYH DQDO\VLV RI HPHUJLQJ PDUNHWV HFRQRPLHV WKURXJK WKH OHQV
HPHUJLQJ PDUNHWV 7KH FRXUVH LQYHVWLJDWHV KRZ WKH JOREDOL]DWLRQ RI HPH
ILUPV 60(V DQG 01(V LQFOXGLQJ HQYLURQPHQWDO VXVWDLQDELOLW\ DQG KRZ WK
RSHUDWLQJ LQ HPHUJLQJ PDUNHWV IDFH DQG ZKDW OHVVRQV FDQ EH OHDUQHG IU
DQG OHDGHUV LQ HPHUJLQJ PDUNHWV DUH EXLOGLQJ ZRUOG FODVV FRPSDQLHV WR
JOREDOL]DWLRQ LPSDFWV WKH LQWHUQDWLRQDO FRPSHWLWLYHQHVV RI GHYHORSH
ILUPV XVLQJ DQDO\VLV DW WKH FRXQWU\ LQGXVWU\ ILUP DV ZHOO DV VXEVLGLDU

0%$ *OREDO 5LVN 0DQDJHPHQW XQLWV

$QDO\]HV NH\ GLPHQVLRQV RI JOREDO ULVN DFURVV ERWK WKH ILQDQFLDO DQG QR
[illegible]

0%$ 0DQDJLQJ $FURVV &XOWXUHV XQLWV

8WLOL]HV D IUDPHZRUN IRU XQGHUVWDQGLQJ DSSURDFKLQJ DQG PDQDJLQJ FURVV
FXOWXUH VHFLILFV DFURVV UHJLRQV DQG GLIIHUHQFHV LQ SDWWHUQV RI FRPPXQ
LQWHUQDWLRQDO EXVLQHVV OHDGHUVKLS DQG PDQDJHPHQW 7KH FRXUVH DOVR DG
DWWLWXGHV WRZDUGV VXVWDLQDELOLW\ WUDQVLWLRQV DQG GLYHUVLW\ PDQDJHPH
LQWHUQDWLRQDO H[SHULHQFH DQG ZRUN LQ WHDPV WR FRQGXFW FURVV FXOWXUD

0%$,QWHUQDWLRQDO $FFRXQWLQJ XQLWV

([DPLQHV DQG DQDO\]HV DFFRXQWLQJ FRQFHSWV SULQFLSOHV DQG PHWKRGV IRU F
)LQDQFLDO 5HSRUWLQJ 6WDQGDUGV ,)56 IRUHLJQ FXUUHQF\ WUDQVODWLRQ VHJ
VWDQGDUGV FURVV ERUGHU FRPSDUDWLYH DQDO\VLV DQG WKH PDQDJHULDO DVSH
FURVV ERUGHU DQDO\VLV RI LQWHUQDWLRQDO FRUSRUDWH VRFLDO UHVSRQVLELOL
FRQVLGHUDWLRQV DQG FXOWXUDO LQIOXHQFHV

0%$ *OREDO %XVLQHVV 'LVUXSWLRQV XQLWV

7KH QH[W JHQHUDWLRQ RI EXVLQHVV PRGHOV ZLOO QRW RQO\ EH GULYHQ E\ YDOXH
VFDOH :LWK WKH DGYHQW RI FRPSDQLHV OLNH 8EHU DQG $OLEDED DQG WHFKQRO
LQGXVWULHV DUH JHWWLQJ GLVSODFHG DW DQ LQFUHGLEOH SDFH &RXQWULHV WK
HFRQRPLHV DQG GHYHORSHG SROLWLFDO FORXW DUH IDFLQJ QHZ LQQRYDWLRQ FKD
WUDGLWLRQDO LQGXVWULHV KDYH EHHQ GLVUXSWHG E\ LQQRYDWLRQ ,W VXUYH\V
WR FUHDWH PRGHOV WKDW UHVRQG WR FRPSHWLWLRQ

0%$ (FRORJLFDO %XVLQHVV 0RGHOV XQLWV

([DPLQHV WKH UHODWLRQVKLS EHWZHHQ KXPDQV DQG WKH HQYLURQPHQW DQG H[S
VXVWDLQDELOLW\ :H UHIOHFW RQ WKH UROH ZRUOGYLHZV WKH HFRQRPLF V\VWHP
6WXGHQWV OHDUQ DQG DSSO\ YDULRXV SULQFLSOHV DQG WRROV IRU FKDQJH LQFO
HFRORJLFDO HFRQRPLFV IRU FUHDWLQJ D PRGHUQ ZRUOGYLHZ WKDW UHFRJQL]HV I
WUDGH DQG DQ DUUD\ RI HFR FRPPHUFH PRGHOV EHLQJ XVHG E\ EXVLQHVV WR RSI
WKH ZRUOG¶V PRVW FKDOOHQJLQJ LVVXHV

0%$ 6XVWDLQDEOH 0HWULFV DQG 3ROLF\ XQLWV

([SORUHV V\VWHPDWLF RUJDQL]DWLRQDO VXVWDLQDELOLW\ LVVXHV IURP WKH SHU\
FRQVXOWDQW 0XOWLSOH JOREDO DSSURDFKHV DUH OHDUQHG DQG SUDFWLFHG IU
WKDW FUHDWH JURXQG UXOHV ZLWK WKH ULJKW LQFHQWLYHV WR GHVLJQLQJ PHWU
DQG ILQDQFLDO FDSLWDO DFFRXQWV &XUUHQW WUHQGV LQ VXVWDLQDELOLW\ UHS
7KH FRXUVH LQFOXGHV D VLJQLILFDQW FRQVXOWLQJ SURMHFW WKDW LQWHJUDWHV

0%$ 1HZ 9HQWXUH &UHDWLRQ XQLWV

(QJDJHV VWXGHQWV ZLWK D NQRZOHGJH EDVH DQG WRROV WR HYDOXDWH JOREDO
VWDUWXSV DQG HVWDEOLVKHG EXVLQHVVHV RU DV DQ LQWUDSUHQHXU WR JHQHUD
WKH YDULRXV VWDJHV RI FUHDWLQJ D QHZ EXVLQHVV YHQWXUH LQFOXGLQJ QHZ YH
YDOLGDWLRQ VWDUWXS SLWFK DQG EXVLQHVV SODQ FUHDWLRQ VWXGHQWV H[SOR
LQFOXGLQJ ERRWVWUDSSLQJ DQJHO LQYHVWRUV SULYDWH HTXLW\ YHQWXUH FDS
VXFK DV :$&& DQG '&) DQG GHYHORS SUR IRUPD ILQDQFLDO VWDWHPHQWV WR SURM
ERWWRP OLQH IUDPHZRUN

0%$,QQRYDWLRQ DQG 'HVLJQ 7KLQNLQJ XQLWV

(TXLSV VWXGHQWV ZLWK WKH NQRZOHGJH DQG WRROV WR HQJDJH LQ LQQRYDWLRQ
HQYLURQPHQW 6WXGHQWV ZLOO EH IRFXVHG RQ GHYHORSLQJ FUHDWLYH WKLQNLQ
KXPDQ FHQWHUHG GHVLJQ WKLQNLQJ +XPDQ FHQWHUHG GHVLJQ WKLQNLQJ LV D PH
VROXWLRQV JLYHQ YDULRXV WLPH UHVRXUFH DQG WHFKQRORJLFDO FRQVWUDLQW
SUREOHPV ZLWK D JRDO RI JHQHUDWLQJ VROXWLRQV RU DOWHUQDWLYH DSSURDFK
WR EXLOG OHDG DQG QXUWXUH DQ LQQRYDWLYH DQG VXVWDLQDELOLW\ RULHQWHG

0%$ 6RFLDO (QWHUSULVH IRU 6XVWDLQDEOH 'HYHORSPHQW XQLWV

)RFXVHV RQ 6RFLDO (QWHUSULVH DQ RUJDQL]DWLRQDO PRGHO WKDW UHFRJQL]HV FRQGLWLRQV WKURXJK EXVLQHVV DQG RUJDQL]DWLRQV DQG LWV UROH LQ VXVWDL LPSDFWV RI DQG RQ HQWHUSULVHV WKHLU FRQVHTXHQFHV DQG IXWXUH DOWHUQD FRPPXQLW\ EDVHG FRRSHUDWLYH PRGHOV DUH H[SORUHG WR VXSSRUW VWXGHQWV FKDQJH :LWKLQ WKLV FRQWH[W VWXGHQWV ZLOO DOVR VWXG\ DQG HYDOXDWH WRS GHYHORSPHQW SURMHFW KXPDQ VFDOH GHYHORSPHQW DQG GHYHORSPHQW HFRQ

0%$ %XLOGLQJ +LJK 3HUIRUPDQFH 7HDPV XQLWV

([DPLQHV DQG HYDOXDWHV WKHRULHV DQG SUDFWLFHV IRU RSWLPL]LQJ KXPDQ SRW VXVWDLQDEOH HWKLFDO VWUDWHJ\ GULYHQ RUJDQL]DWLRQV)RFXV RQ FOHDU LQ REMHFWLYHV YLUWXDO WHDPV DQG HPSOR\HH HQJDJHPHQW &RQVLGHU VWUDWHJL EULGJH JDS EHWZHHQ RUJDQL]DWLRQDO VWUDWHJLF QHHGV DQG WHDP PHPEHUV¶ V PXOWLSOH DQG FRQIOLFWLQJ GHPDQGV RI VXFFHVVIXO SHUIRUPDQFH PDQDJHPHQW IHHGEDFN DQG FRDFKLQJ VNLOOV 5HFHLYH SHUVRQDO IHHGEDFN RQ OHDGHUVKLS SODQ RULJLQDWHG LQ FRUH OHDGHUVKLS FRXUVH

0%$ /HDGHU 'ULYHQ 6WUDWHJLF 3ODQQLQJ XQLWV

5HYLHZV KRZ OHDGHUV KDYH VWUDWHJLFDOO\ FUHDWHG DQG DIIHFWHG RUJDQL]DW SODQQLQJ SURFHVV VWXGHQWV DSSO\ WKRVH SULQFLSOHV WR WKH FUHDWLRQ RI SHUVSHFWLYH RI OHDGHUVKLS LQ DQ RUJDQL]DWLRQ 8VLQJ D OHDGHUVKLS VW\OH VKRXOG EH LQFOXGHG LQ FUHDWLQJ DQ RUJDQL]DWLRQ¶V VWUDWHJLF SODQ GHWH GHWDLOHG VKRUW WHUP DQG ORQJ WHUP VWUDWHJLF LQLWLDWLYHV DQG WKHLU H WKH VWUDWHJLF SODQ ZLOO EH SUHVHQWHG WR WKH RUJDQL]DWLRQ DQG KRZ WKH PLVVLRQ VWDWHPHQW ZKLOH HQVXULQJ D WDUJHWHG GHJUHH RI LQVSLUDWLRQ HP VXVWDLQDELOLW\ GULYHQ PDQDJHPHQW SUDFWLFHV E\ LQWHJUDWLQJ VXVWDLQDEL

0%$ &RQVXOWLQJ IRU (IIHFWLYH &KDQJH /HDGHUVKLS XQLWV

([DPLQHV WKHRULHV DQG SUDFWLFHV IRU OHDGLQJ SHRSOH WR HIIHFW RUJDQL]DW EXVLQHVV JRDOV $QDO\]H 2UJDQL]DWLRQ 'HYHORSPHQW 2' WKHRULHV RI RUJDQL DV OLPLW LWV LPSDFW DQG OHDGHU¶V UROH DV DQ DUFKLWHFW RI WKH RUJDQL]DW QHJRWLDWLRQ DQG FRQIOLFW PDQDJHPHQW VNLOOV DQG QHJRWLDWLRQ SURFHVVH REMHFWLYHV RI D FKDQJH LQLWLDWLYH 7KURXJK WKH 'RPLQLFDQ /HDGHUVKLS /HD EXVLQHVVHV JRYHUQPHQW DQG QRQ SURILW RUJDQL]DWLRQV VWXGHQWV ZLOO VH GHJUHH OHDGHUVKLS DVVHVVPHQWV

0%$ /HDGLQJ DQG *URZLQJ 6WDUW XSV XQLWV

$QDO\]HV NH\ UHTXLUHPHQWV WR DGYDQFH D VPDOO HQWHUSULVH EH\RQG WKH VW UROHV SURFHVVHV DQG SHRSOH UHTXLUHPHQWV W\SLFDO RI WKH ILYH VWDJHV RI VWDJHV IURP WKDW RI WKH SURGXFW VHUYLFH RIIHULQJ WKH IRUPHU EHLQJ FRQW JOREDO FRPSHWLWLYH HQYLURQPHQW LQ DQ HYHU LQFUHDVLQJ VXVWDLQDELOLW\ LQGLYLGXDO OHDGHUVKLS DGDSWDWLRQ DQG IRU WHDP EXLOGLQJ 8QGHUVWDQG K FRPSDQ\ JRDOV WR JURZ WKH EXVLQHVV XVLQJ VXEVWDQWLYH PHWULFV &KRRVH Z DFWLRQ DV WKH PDUNHW H[SHULHQFHV D VKLIW IURP HDUO\ DGDSWRUV WR PDLQVW IRFXV RQ DQG WKH LPSOLFDWLRQV WKRVH FKRLFHV KDYH RQ WKH FRUUHVSRQGLQJ JURZWK

0%$,QQRYDWLYH 2UJDQL]DWLRQDO 'HYHORSPHQW DQG ,QWHUYHQWLRQ

,QYHVWLJDWH FKDQJH OHDGHUVKLS DQG LWV LPSDFW RQ LQGLYLGXDOV WHDPV D VWUDWHJLHV DQG DFWLRQV WKDW RYHUFRPH UHVLVWDQFH OHDGLQJ WR LQQRYDW V\VWHPV DQG SURFHVVHV DQDO\]H LQLWLDWLYHV RI FUHDWLQJ DQG OHDGLQJ VXS

&/6		&OLQLFDO /DE)LQDQFLDO 0DQDJHPHQW D	
&/6		4XDOLW\ 6\VWHPV	
&/6		7HFKQLFDO 3URMHFW 0DQDJHPHQW	
&/6		0ROHFXODU 'LDJQRVWLFV /DERUDWRU\ ,	
&/6		0ROHFXODU 'LDJQRVWLFV /DERUDWRU\ ,,	
&/6		0DVWHU¶V 5HVHDUFK 3URMHFW	4BQSD% A–

&3		$GYDQFHG &RXQVHOLQJ 7HFKQLTXHV &OL &DUH	
&3		)XQGDPHQWDOV RI &OLQLFDO 3UDFWLFH *	
&3		'RPHVWLF 9LROHQFH $VVHVVPHQW 5HSRU	
&3		&KLOG $EXVH $VVHVVPHQW 5HSRUWLQJ	
&3		$OFRKRO DQG 6XEVWDQFH $EXVH	
&3		3URIHVVLRQDO (WKLFV DQG /DZ	
&3		*HULDWULFV DQG /RQJ WHUP &DUH	
&3		+XPDQ 'LYHUVLW\	
&3		&DUHHU &RXQVHOLQJ	
&3		3V\FKRORJLFDO $VVHVVPHQW	
&3		5HVHDUFK LQ +XPDQ 6\VWHPV DQG 7UHDWI	
&3		3V\FKRSKDUPDFRORJ\	
&3		3KDVHV RI +XPDQ 'HYHORSPHQW	
&3		3V\FKRSDWKRORJ\ DQG 7UHDWPHQW 3ODQ(	
&3		&OLQLFDO $VSHFWV RI +XPDQ 6H[XDOLW\	
&3		$GYDQFHG &RXQVHOLQJ 7HFKQLTXHV)DPL	
&3		$GYDQFHG &RXQVHOLQJ 7HFKQLTXHV &RX	
&3		3UDFWLFXP 6HPLQDU VHPHVWHUV	
7RWDO 0)7 LQ &RXQVH 3V\FKRORJ\ ZLWK FRQ			XQLW

3UHUHTXLVLWH &3 3KDVHV RI +XPDQ 'HYHORSPHQW RU FRQVHQW RI LQVWUXF
3UHUHTXLVLWH XQLWV LQFOXGLQJ &3 3URIHVVLRQDO /DZ DQG (WKLFV &3
3V\FKRWKHUDS\ &3 $GYDQFHG &RXQVHOLQJ 7HFKQLTXHV %ULHI DQG 6WUDWHJ
7UHDWPHQW 3ODQQLQJ

$GGLWLRQDO 5HTXLUHPHQWV

&RPSHWHQF\ %DVHG

7KH 'HSDUWPHQW RI &RXQVHOLQJ 3V\FKRORJ\¶V SURJUDP LV D FRPSHWHQF\ RXWFR
WUDLQLQJ)RU WKRVH SXUVXLQJ VWDWH OLFHQVXUH DV D 0DUULDJH DQG)DPLO\ 7
%HKDYLRUDO 6FLHQFHV UHTXLUHV WKDW FRXUVHZRUN EH WDNHQ LQ SUHVFULEHG
FRQFHQWUDWLRQ LQ 0DUULDJH DQG)DPLO\ 7KHUDS\ DQG 3URIHVVLRQDO &OLQLFDO
%XVLQHVV DQG 3URIHVVLRQV &RGH 6HFWLRQ DQG WKH &DOLIRUQLD %XVLQHV
7KH DUHDV RI SURIHVVLRQDO FRPSHWHQFH UHTXLUHG RI DOO VWXGHQWV LQFOXGH

- (IIHFWLYHQHVV DQG FODULW\ LQ ZULWWHQ FRPPXQLFDWLRQ DFFRUGLQJ WR
- (IIHFWLYHQHVV DQG FODULW\ LQ YHUEDO FRPPXQLFDWLRQ DFFRUGLQJ WR

- 6NLOO LQ DVVHVVPHQW DQG SUREOHP GHILQLWLRQ
- $ELOLW\ WR ZULWH D 7UHDWPHQW 3ODQ WKDW HIIHFWLYHO\ DOLJQV ZLWK
  FDVHV HYLGHQFH EDVHG 7KHRHWLFDO 2ULHQWDWLRQ DQG 0RGHO RI WUH
- $ELOLW\ WR ZULWH DQG FOHDUO\ GRFXPHQW WKH FRXUVH RI WUHDWPHQW
- 8QGHUVWDQGLQJ RI KXPDQ GLYHUVLW\ LVVXHV LQ FRXQVHOLQJ DQG WKH D
- 8QGHUVWDQGLQJ RI DQG DELOLW\ WR DSSO\ FXUUHQW ODZ DQG SURIHVVLR
- 8QGHUVWDQGLQJ RI DSSURSULDWH SURIHVVLRQDO DQG FRPPXQLW\ UHVRXU
  LPSOHPHQWDWLRQ RI FOLHQW DGYRFDF\ DQG FROODERUDWLYH FDUH VNLO
- $ELOLW\ WR HIIHFWLYHO\ DSSO\ WKHRU\ DQG WHFKQLTXHV RI FRXQVHOLQJ
  FOLHQWV
- &ULWLFDO WKLQNLQJ DQG FOLQLFDO DQDO\WLF VNLOOV WKDW H[WHQG EH\
- $ELOLW\ WR VHOI UHIOHFW XSRQ VWUHQJWKV DQG ZHDNQHVVHV RI D SDUW
  DFFRUGLQJ WR WKH FKRVHQ WKHRUHWLFDO IUDPHZRUN

'HFODUDWLRQ RI &RQFHQWUDWLRQ DQG 0LG 3URJUDP 3HU

7KH &RXQVHOLQJ 3V\FKRORJ\ GHSDUWPHQW KDV WKUHH FRQFHQWUDWLRQV 0DVWH
LQ &RXQVHOLQJ 3V\FKRORJ\ ZLWK D FRQFHQWUDWLRQ LQ 0DUULDJH DQG)DPLO\ 7K
FRQFHQWUDWLRQ LQ /LFHQVHG 3URIHVVLRQDO &OLQLFDO &RXQVHORU 6WXGHQWV
XQLWV 6WXGHQWV FDQQRW UHJLVWHU IRU DQ\ DGGLWLRQDO FRXUVHV XQWLO WKH

)RUPDO HYDOXDWLRQV DUH FRQGXFWHG DW WZR PLG SRLQWV LQ D VWXGHQW¶V SU
DQG VHFRQG RQ D FOLQLFDO OHYHO DIWHU FRPSOHWLQJ WKH ILUVW VHPHVWHU RI
VWXGHQW LQ D 3UDFWLFXP RU *0 6HPLQDU ZLOO UHFHLYH LQGLYLGXDO IHHGEDFN I
VXSHUYLVRU V

0)7 DQG 3&& &RQFHQWUDWLRQ DQG 3UDFWLFXP

$ PLQLPXP RI KRXUV RI SUDFWLFXP LV UHTXLUHG IRU WKH 0)7 &RQFHQWUDWLRQ
JRYHUQPHQWDO DJHQFLHV VFKRROV RU FROOHJHV QRQ SURILW DQG FKDULWDEOH
SURIHVVLRQDOV FORVHO\ VXSHUYLVH DOO VWXGHQWV GXULQJ WKHLU 0)7 DQG RU 3
DV ILHOGZRUN FRQVXOWDQWV WHDFKLQJ 3UDFWLFXP 6HPLQDUV ZKLFK DUH OLPLW

*HQHUDO 0DVWHU¶V &RQFHQWUDWLRQ 9ROXQWHHU 3ODF

2Q VLWH SURIHVVLRQDOV FORVHO\ VXSHUYLVH DOO VWXGHQWV GXULQJ WKHLU YRO
UHTXLUHG IRU *HQHUDO 0DVWHU¶V &RQFHQWUDWLRQ ,Q DGGLWLRQ VWXGHQWV SD
FRPSRVHG RI D PD[LPXP RI HLJKW VWXGHQWV

3V\FKRWKHUDS\ 5HTXLUHPHQWV

7KH 'HSDUWPHQW RI &RXQVHOLQJ 3V\FKRORJ\ UHTXLUHV WKDW DOO VWXGHQWV LQ
SHUVRQDO SV\FKRWKHUDS\ XS WR RI WKHVH KRXUV PD\ KDYH EHHQ GRQH ZLWKL
UHTXLUHPHQW LV EDVHG RQ WKH EHOLHI LQ WKH YDOXH RI VWXGHQWV SHUVRQDOO
RWKHUV

6WXGHQWV LQ WKH *HQHUDO 0DVWHU¶V FRQFHQWUDWLRQ DUH QRW UHTXLUHG WR
0DVWHU¶V VWXGHQW FKRRVHV WR SDUWLFLSDWH LQ SHUVRQDO SV\FKRWKHUDS\ GX
WRZDUGV KLV KHU UHTXLUHG)LHOGZRUN YROXQWHHU KRXUV

&RXQVHOLQJ 3V\FKRORJ\ 06 0)7 3&&
'HVFULSWLRQV

&3)XQGDPHQWDOV RI &OLQLFDO 3UDFWLFH ,QGLYLGXDO 3V\FKRWKHUD

$Q LQWURGXFWLRQ WR WKH SUDFWLFH RI LQGLYLGXDO SV\FKRWKHUDS\ 7RSLFV FR
DFFRPSOLVKLQJ WKH WDVNV RI SV\FKRWKHUDS\ FXOWXUDO LGHQWLWLHV DQG GLY
DGGUHVV WKHUDSHXWLF REVWDFOHV FOLQLFDO GRFXPHQWDWLRQ DWWDFKPHQW
3V\FKRG\QDPLF FRJQLWLYH EHKDYLRU WKHUDS\ &%7 DQG KXPDQLVWLF WKHRUHW
VNLOOV GHYHORSHG LQ HDFK SHUVSHFWLYH

6WXGHQWV QRW HQUROOHG LQ WKH &RXQVHOLQJ 3V\FKRORJ\ SURJUDP PXVW KDYH
'HSDUWPHQW &KDLU ZKR LQ FRQVXOWDWLRQ ZLWK LQVWUXFWRU PD\ SURYLGH DSSU

&3)XQGDPHQWDOV RI &OLQLFDO 3UDFWLFH *URXS 3V\FKRWKHUDS\ X

7KHRUHWLFDO DQG SUDFWLFDO DSSURDFKHV WR ZRUNLQJ ZLWK JURXSV DUH GLVFX
REMHFWLYHV JURXS REVHUYDWLRQ DQG DVVHVVPHQW VNLOOV OHDGHUVKLS VW\O
VRFLR HFRQRPLF GLYHUVLW\ VRFLDO VWUHVV DQG WHUPLQDWLRQ 5HFRYHU\ RUL
JURXSV RUJDQL]DWLRQDO GHYHORSPHQW VFKRROV PDQDJHG FDUH LQ SDWLHQW
VHUYLFHV *URXS VWUXFWXUH LV DVVHVVHG IRU VHOI KHOS JURXSV WDVN JURXSV
SURPRWHV D EDODQFH RI VWUXFWXUH DQG SURFHVV WKDW IDFLOLWDWHV LQVLJKW
UHOHYDQW IRU ERWK WKH EHJLQQHU DQG H[SHULHQFHG VWXGHQW DQG JURXS OHD
3V\FKRORJ\ *UDGXDWH 3URJUDP

&3 $GYDQFHG &RXQVHOLQJ 7HFKQLTXHV $VVHVVPHQW DQG WUHDWPHQ

(YDOXDWLRQ DQG WUHDWPHQW RI @0p€•€ð 0 p€$` pUp@p€`0À 0pÀ•€P`ƒR

(J0u •@

LPSOLFDWLRQV RI KXPDQ GLYHUVLW\ LVVXHV RQ WKHUDSHXWLF DQG LQWHUSHUVR
ZLOO EH DGGUHVVHG 7KH IROORZLQJ TXHVWLRQV ZLOO EH DGGUHVVHG :KDW VWH
GLIIHUHQW JURXSV" :KDW LQIOXHQFH GRHV WKLV KDYH RQ KRZ \RX UHODWH WR RW
HQFRXQWHU DQG WR \RXU UROH DV D SURIHVVLRQDO FRXQVHORU" :LWKRXW VXFK D
LQDGYHUWHQWO\ DVVXPH WKDW HYHU\RQH VKDUHV WKHLU ZRUOGYLHZ :KHQ WKLV
LPSRVLQJ YDOXHV RQ WKHLU FXOWXUDOO\ GLIIHUHQW FOLHQWV 7KLV FRXUVH LV
3URJUDP OL]DWLR3V\FXUU FOLHDSLYLV G XQGHDPQJ G LYLHQ WKQG V QJ HV FOLG
€@@P€0`ðÀ5€0uP`€€00p0P` À€` 0T 0 pp€ •0R`€0À`0p`0¤À3` ð À0 PP° @0@@0p`p0 ‡p D Ðahu

'HSDUWPHQW &KDLU ZKR LQ FRQVXOWDWLRQ ZLWK LQVWUXFWRU PD\ SURYLGH DSSU

&3 3V\FKRSDWKRORJ\ DQG 7UHDWPHQW 3ODQQLQJ XQLWV

$Q LQWURGXFWLRQ WR WKH XVH RI GLDJQRVLV LQ DVVHVVPHQW DQG WUHDWPHQW
KLVWRU\ RI WKH 'LDJQRVWLF DQG 6WDWLVWLFDO 0DQXDO RI 0HQWDO 'LVRUGHUV '
IDFWRUV LQYROYHG LQ GLDJQRVLV DQG GHYHORSLQJ D WUHDWPHQW SODQ EDVHG
FDWHJRULHV DUH FRYHUHG LQ WKH FRXUVH)LUVW SHUVRQ PHPRLU ILOP GHSLFWL

ZLWK WKH 3UDFWLFXP 'LUHFWRU XVH RI WKH 3UDFWLFXP 'DWDEDVH PDLQWDLQHG
WKH 3UDFWLFXP ,QIRUPDWLRQ 0HHWLQJV DQG DW WKH)LHOGZRUN)DLU KHOG HDFK

&UHDWLYH :ULWLQJ 0)$

7KH 0DVWHU RI)LQH $UWV LQ &UHDWLYH :ULWLQJ LV D ORZ UHVLGHQF\ SURJUDP W
)LFWLRQ DQG &UHDWLYH 1RQILFWLRQ)RU DSSUR[LPDWHO\ WKUHH ZHHNV RXW RI
ZRUNVKRSV UHDGLQJV OHFWXUHV DQG RQH RQ RQH VHVVLRQV ZLWK WKHLU PHQW
VHPHVWHU 'XULQJ WKH VHPHVWHUV VWXGHQWV DUH JXLGHG E\ WKHLU PHQWRUV
DQG FRQYHUVLQJ YLD SKRQH RU YLGHR FDOO 7KH ORZ UHVLGHQF\ IRUPDW DOORZV
FDUHHU UHVSRQVLELOLWLHV RU ZKR FDQQRW UHORFDWH LQ RUGHU WR SXUVXH D J
VWXGHQWV UHFHLYH PD[LPXP VXSSRUW IRU WKHLU XQLTXH SURMHFWV RQ FDPSXV
FRPPXQLWLHV

6WXGHQWV ZLWK DQ LQWHUHVW LQ +HDOWK +XPDQLWLHV PD\ FKRRVH WR IROORZ D
:ULWLQJ IRU 5HQHZDO :H ZHOFRPH VWXGHQWV IURP DOO VLGHV RI WKH LOOQHVV H
DGYRFDWHV²DQ\RQH ZKR LV FDOOHG WR EHDU ZLWQHVV WKURXJK WKH ZULWWHQ ZI
RIIHU RU ZLWK WKH SHUPLVVLRQ RI WKH SURJUDP GLUHFWRU SURGXFH D FURVV J
FRPSOHPHQW D FDUHHU LQ KHDOWKFDUH GHHSHQ VHOI DZDUHQHVV DQG IRVWHU
OLWHUDWXUH LV D SRZHUIXO PHGLFLQH

3URJUDP /HDUQLQJ 2XWFRPHV

7KH VWXGHQW ZLOO GHPRQVWUDWH

&RPSUHKHQVLYH NQRZOHGJH RI SXEOLVKHG ZRUNV LQ WKHLU ILHOG DQG KRZ
6NLOOIXO ZULWLQJ LQ WKHLU FKRVHQ JHQUH
$Q DFTXLUHG GLVFLSOLQH IRU PDLQWDLQLQJ D OLIHORQJ ZULWLQJ SUDFWLF
$QG FUHDWH D VXEVWDQWLDO ZRUN RI KLJK OLWHUDU\ PHULW

&UHDWLYH :ULWLQJ 0)$ 5HTXLUHPHQ

)RU GHWDLOV RQ $GPLVVLRQ*UHDWLYH :ULWLQJ 0)$ 5HTXLUHPHQWV **VHH** WKH RI WKLV FDWDORJ

3URJUDP 'HVFULSWLRQ

7KH XQLW ORZ UHVLGHQF\ 0)$ EHJLQV DQG HQGV LQ WKH 6XPPHU H[WHQGLQJ RY
PHQWRUVKLS VHPHVWHUV DQG ILYH UHVLGHQFLHV 6WXGHQWV FRPSOHWH D ERRN
SURJUDP GHVLJQ LV SLFWXUHG LQ WKH WDEOH EHORZ

&5:5		0HQWRUVKLS &UHDWLYH 1RQILFWLRQ	
RU &5:5		0HQWRUVKLS &UHDWLYH 1RQILFWLRQ	
7RWDO &UHDWLYH :UL			

DERXW SXEOLVKLQJ DQG HGLWLQJ 6WXGHQWV ZRUN ZLWK WKHLU PHQWRUV WR SU

&5:5 0HQWRUVKLS 32 1DUUDWLYH 3RHWLF 0HGLFLQH XQLWV

0HQWRUVKLS IRFXVHV RQ UHYLVLRQ DQG WKH DVVHPEOLQJ RI WKH VWXGHQW¶V Z
SRHWU\ HVVD\V D PHPRLU RU D K\EULG JHQUH (YHU\ IRXU ZHHNV VWXGHQWV ZLO

SRHWU\ HVVD\V D PHPRLU RU D K\EULG JHQUH (YHU\ IRXU ZHHNV VWXGHQWV ZLC
6WXGHQWV ZLOO DOVR HQJDJH LQ PRQWKO\ RQOLQH GLVFXVVLRQ ZRUNVKRSV ZLW

&5:5 0HQWRUVKLS &UHDWLYH 1RQILFWLRQ XQLWV

0HQWRUVKLS SODFHV $PHULFDQ FUHDWLYH QRQILFWLRQ RI WKH VW FHQWXU\ LQ
DQG DHVWKHWLF FKRLFHV IRU KLV RU KHU ZRUN 6WXGHQWV DUH H[SHFWHG WR EH
6WXGHQWV ZLOO UHDG VHOHFWHG ZRUNV DORQJ ZLWK HVVD\V WKDW GLVFXVV WKH
WKH UHDGLQJV DUH DLPHG WRZDUGV JHQHUDWLQJ QHZ ZRUNV IRU WKH HQG RI VHP
6WXGHQWV ZLOO DOVR HQJDJH LQ PRQWKO\ RQOLQH R@–rXGHQ–r 0 0 ``ÀÐ0``° ZLWK
6WXGHQWV ZLOO UHDG VHOHFWHG ZRUNV DORQJ ZLWK HVV``0I WKXVV WKH FLWC XC
WKH UHDGLQJV DUH DLPHG WRZDUGV JHQHUDWLQJ QHZ ZRUNV IRU WKH HQG RI LW‰

RQILFWLPHG WUNVWLQFHVLF PQWf(U p 00 T€0 `0@°À0@õ hGE 0 ¶ P0Ff(p0 Àp°8‘ €@0
WKH UHDGb•QåP DUH DLPHG WRZDULT–A`p P–AKH 0 € €P(

VKLS &UHLYH 1RQILFWLPHG WUNVWLQFHVLF PQWf(U p 00 T€0 `0@°À0@õ hGE 0
WKH UHDGb•QåP DUH DLPHG RZDU

WKH UHDGb•QåP DUH DLPHG RZDU

0DVWHU RI 6FLHQFH LQ (GXFDWLRQ 'H 7HDFKHU 3UHSDUDWLRQ 3URJUDPV

'RPLQLFDQ¶V 0DVWHU¶V GHJUHH SURJUDPV GHYHORS JUDGXDWHV ZKR EHFRPH HGX &DOLIRUQLD¶V . GLYHUVH SRSXODWLRQV :H H[SHFW RXU JUDGXDWHV WR SOD\ D HGXFDWLRQ FRPPXQLWLHV

6WDWHPHQW RI 3XUSRVH

'RPLQLFDQ 8QLYHUVLW\ RI &DOLIRUQLD FDQGLGDWHV DUH SUHSDUHG WR DGGUHVV GHYHORSPHQW LQ FRPPXQLFDWLRQ FROODERUDWLRQ FUHDWLYLW\ DQG FULWLFD EHJLQ ZLWK IRXQGDWLRQDO NQRZOHGJH LQ VSHFLDO HGXFDWLRQ FKLOG DQG DGR WHFKQRORJ\ WKHQ WKH\ SURJUHVV WR VXEMHFW VSHFLILF SHGDJRJLHV DQG ILQDO FRXUVHV DQG WDNH WKHP LQ DQ LQWHQWLRQDOO\ VHTXHQFHG RUGHU

$OO PXOWLSOH VLQJOH VXEMHFW DQG (GXFDWLRQ 6SHFLDOLVW FDQGLGDWHV IROO GLYLGHG LQWR WKUHH FDWHJRULHV FRUH FRXUVHV SHGDJRJ\ DQG UHIOHFW WKLV VHTXHQFH KDV EHHQ DVVLJQHG VSHFLILF 7HDFKLQJ 3HUIRUPDQFH ([SHFWDWL FDQGLGDWHV ZKR DUH VWXGHQW WHDFKLQJ RU LQWHUQ WHDFKLQJ KDYH RSSRUWX FRPSHWHQFLHV DV GHILQHG E\ WKH 73(V

$GGLWLRQDO 0DVWHU RI 6FLHQFH LQ 3URJUDPV

'RPLQLFDQ 8QLYHUVLW\ RI &DOLIRUQLD RIIHUV VHYHUDO XQLW JUDGXDWH SURJU (GXFDWLRQ 7KHVH SURJUDPV DUH GHVLJQHG IRU HGXFDWLRQ SURIHVVLRQDOV ZKR SUHSDUH IRU OHDGHUVKLS UROHV LQ HGXFDWLRQ 7KHVH SURJUDPV SUHSDUH FDQ SURIHVVLRQDO FDUHHUV

7KH WZR HPSKDVLV RSWLRQV DUH 6SHFLDO (GXFDWLRQ RU ,QWHUGLVFLSOLQDU\ 6 VHPHVWHUV &RXUVHV DUH RIIHUHG GXULQJ LQ WKH ODWH DIWHUQRRQ HDUO\ HYH DFFRPPRGDWH WKH QHHGV RI ZRUNLQJ SURIHVVLRQDOV

3OHDVH VHH LWHP RQ WKH *UDGXDWH &RXQFLO WKLV FDWDORJ IRU DGPLVVLRQ UHTXLUHP

0DVWHU RI 6FLHQFH LQ (GXFDWLRQ 6SHFLDO (GXFDWLRQ

7KLUW\ XQLWV RI FRXUVHZRUN DQG GLUHFWHG UHVHDUFK DUH UHTXLUHG IRU WKH XQLWV RI DGYDQFHG FRXUVHZRUN LQ 6SHFLDO (GXFDWLRQ

0DVWHU RI 6FLHQFH LQ (GXFDWLRQ ,QWHUGLVFLSOLQDU\

7KH ,QWHUGLVFLSOLQDU\ SURJUDP LV LGHDO IRU ZRUNLQJ SURIHVVLRQDOV ZKR DU WKUHH VHPHVWHUV RI JUDGXDWH OHYHO ZRUN DW WKH XQLYHUVLW\ LV XVXDOO

$OO FDQGLGDWHV LQ WKH ,QWHUGLVFLSOLQDU\ SURJUDP WDNH D XQLW FRUH FR VHOHFWHG JUDGXDWH ILHOGV EDVHG RQ LQGLYLGXDO LQWHUHVWV DQG FDUHHU J DSSURYHG E\ WKHLU DGYLVRU ZKLFK LV SUHVHQWHG DW WKH HQG RI WKH SURJUD

0DVWHU RI 6FLHQFH LQ (GXFDWLRQ 'H
7HDFKHU 3UHSDUDWLRQ 3URJUDP /HD

'RPLQLFDQ¶V 'HSDUWPHQW RI (GXFDWLRQ IDFXOW\ GHVLJQHG VHYHQ 3URJUDP /HDU
DELOLWLHV WKDW ZH H[SHFW RI HYHU\ FDQGLGDWH ZKR FRPSOHWHV 'RPLQLFDQ¶V

6WXGHQW 7HDFKLQJ 2SWLRQ

3UHOLPLQDU\ 6LQJOH 6XEMHFW &UHGHQWLDO

7KH 3UHOLPLQDU\ 6LQJOH 6XEMHFW &UHGHQWLDO DXWKRUL]HV WKH KROGHU WR WH
GHSDUWPHQWDOL]HG FODVVHV VXFK DV WKRVH LQ PRVW PLGGOH VFKRROV DQG KLJ
LQVWUXFWLRQ PD\ EH DVVLJQHG WR WHDFK DQ\ VXEMHFW LQ KLV RU KHU DXWKRUL
FODVVHV RUJDQL]HG SULPDULO\ IRU DGXOWV

('8&		8VLQJ 7HFKQRORJ\ LQ &ODVVURRPV	
7RWDO &RUH &RXUVHV			XQLW

3HGDJRJ\ DQG 5HIOHFW 3UDFWLFH			
('8&			

0DVWHU RI 6FLHQFH L (OHFWLYH &RXUVHV 6 UHTXLUHG XQLW FRX			
('8&		&XUUHQW 7UHQGV 3ROLF\ DQG &KDQJH	
('8&		&XUUHQW 7UHQGV &KLOG $GROHVFHQW	
('8&		&XUUHQW 7UHQGV 5HVHDUFK IRU 6RFLDO	
('8&		&XUUHQW 7UHQGV 6SHFLDO (GXFDWLRQ	
7RWDO IRU 0DVWHU R (GXFDWLRQ (OHFWLYH			XQLWV

0DVWHU RI 6FLHQFH LQ (GXFDWLRQ 'HJUHH SOXV 3UHOLPL

7HDFKHU 3UHSDUDWLRQ 3URJUDP XQLWV

6WXGHQW 7HDFKLQJ 2SWLRQ

&RUH &RXUVHV			
('8&		7HDFKLQJ IRU (TXLW\	
('8&		)RXQGDWLRQV RI 6SHFLDO (GXFDWLRQ	
('8&		7HDFKLQJ (QJOLVK /HDUQHUV	
('8&		8VLQJ 7HFKQRORJ\ LQ &ODVVURRPV	
7RWDO &RUH &RXUVHV			XQLW

0DVWHU RI 6FLHQFH L &RUH &RXUVHV			
('8&		$SSURDFKHV WR (GXFDWLRQDO 5HVHDUFK	
('8&		$SSOLHG (GXFDWLRQDO 5HVHDUFK	
('8&		/HDGHUVKLS LQ (GXFDWLRQ	
7RWDO IRU 0DVWHU R (GXFDWLRQ &RUH &RX			XQLWV

0DVWHU RI 6FLHQFH L (OHFWLYH &RXUVHV 6 UHTXLUHG XQLW FRX			
('8&		&XUUHQW 7UHQGV 3ROLF\ DQG &KDQJH	
('8&		&XUUHQW 7UHQGV &KLOG $GROHVFHQW '	
('8&		&XUUHQW 7UHQGV 5HVHDUFK IRU 6RFLDO	
('8&		&XUUHQW 7UHQGV 6SHFLDO (GXFDWLRQ	
7RWDO IRU 0DVWHU R (GXFDWLRQ (OHFWLYH			XQLWV

0DVWHU RI 6FLHQFH LQ (GXFDWLRQ 'HJUHH SOXV 3UHOLPL 7HDFKHU 3UHSDUDWLRQ 3URJUDP XQLWV ,QWHUQVKLS 2SWLRQ

&RUH &RXUVHV			

6XSHUYLVHG)LHOGZR			
('8&		3URIHVVLRQDO 'HYHORSPHQW ,QWHUQVKLS	
('8&		3URIHVVLRQDO 'HYHORSPHQW ,QWHUQVKLS	
('8&		6HFRQGDU\ 3UHSDUDWLRQ IRU 6XSHUYLVH	
('8&		6HFRQGDU\ 6XSHUYLVHG 7HDFKLQJ 6HPLQD	
('8&		6HFRQGDU\ 7HDFKLQJ 3HUIRUPDQFH $VVHV	
7RWDO 6XSHUYLVHG)			XQLW

0DVWHU RI 6FLHQFH L &RUH &RXUVHV			
('8&		'P1h &< rRBðu P1h P1h P1h P1h P1h Q ðu R SSbQ € u / U !Dè R	

('8&		63(' 6XSHUYLVHG 7HDFKLQJ 6HPLQDU	
('8&		63(' 7HDFKLQJ 3HUIRUPDQFH $VVHVVPHQW	
7RWDO 6XSHUYLVHG)			XQLW

0DVWHU RI 6FLHQFH L &RUH &RXUVHV			
('8&		$SSURDFKHV WR (GXFDWLRQDO 5HVHDUFK	
('8&		$SSOLHG (GXFDWLRQDO 5HVHDUFK	
('8&		/HDGHUVKLS LQ (GXFDWLRQ	
7RWDO IRU 0DVWHU R (GXFDWLRQ &RUH &RX			XQLWV

0DVWHU RI 6FLHQFH L (OHFWLYH &RXUVHV 6 UHTXLUHG XQLW FRX			
('8&		&XUUHQW 7UHQGV 3ROLF\ DQG &KDQJH	
('8&		&XUUHQW 7UHQGV &KLOG $GROHVFHQW '	
('8&		&XUUHQW 7UHQGV 5HVHDUFK IRU 6RFLDO	
('8&		&XUUHQW 7UHQGV 6SHFLDO (GXFDWLRQ	
('8&		&KDUDFWHULVWLFV RI ,QIDQWV 7RGGOHU' 1HHGV	
('8&		$VVHVVPHQW DQG ,QVWUXFWLRQ LQ (DUO\	
7RWDO IRU 0DVWHU R (GXFDWLRQ (OHFWLYH			XQLWV

0DVWHU RI 6FLHQFH LQ (GXFDWLRQ 'HJUHH SOXV 3UHOLPL 6SHFLDOLVW 0LOG 0RGHUDWH 7HDFKHU 3UHSDUDWLRQ 3U 6LQJOH 6XEMHFW &UHGHQWLDO +ROGHUV XQLWV 6WXGHQW 7HDFKLQJ 2SWLRQ

&RUH &RXUVHV			
('8&		)RXQGDWLRQV RI 6SHFLDO (GXFDWLRQ	
7RWDO &RUH &RXUVH\			XQLWV

3HGDJRJ\ DQG 5HIOHF 3UDFWLFH			
('8&		3URJUDP 'HVLJQ DQG &XUULFXOXP 'HYHOR	
('8&		)RUPDO DQG ,QIRUPDO $VVHVVPHQW	

('8&		%HKDYLRU ,QWHUYHQWLRQ DQG 6XSSRUW	
('8&		$GYDQFHG &XULFXOXP IRU 'LYHUVH /HDU	
7RWDO 3HGDJRJ\ DQG 3UDFWLFH			XQLW

6XSHUYLVHG)LHOGZR			
('8&		63(' 6XSHUYLVHG 7HDFKLQJ	
('8&		63(' 6XSHUYLVHG 7HDFKLQJ 6HPLQDU	
('8&		2EVHUYDWLRQV RI 7HDFKLQJ	
('8&		63(' 7HDFKLQJ 3HUIRUPDQFH $VVHVVPHQW	
7RWDO 6XSHUYLVHG)			XQLW

0DVWHU RI 6FLHQFH LQ (GXFDWLRQ 'HJUHH SOXV 'XDO 7H
3URJUDP²3UHOLPLQDU\ (GXFDWLRQ 6SHFLDOLVW 0LOG 0R
6XEMHFW XQLWV
,QWHUQVKLS 2SWLRQ

0DVWHU RI 6FLHQFH L &RUH &RXUVHV			
('8&		$SSURDFKHV WR (GXFDWLRQDO 5HVHDUFK	
('8&		$SSOLHG (GXFDWLRQDO 5HVHDUFK	
('8&		/HDGHUVKLS LQ (GXFDWLRQ	
7RWDO IRU 0DVWHU R (GXFDWLRQ &RUH &RX			XQLWV

0DVWHU RI 6FLHQFH L (OHFWLYH &RXUVHV 6 UHTXLUHG XQLW FRX			
('8&		&XUUHQW 7UHQGV 3ROLF\ DQG &KDQJH	
('8&		&XUUHQW 7UHQGV &KLOG $GROHVFHQW '	
('8&		&XUUHQW 7UHQGV 5HVHDUFK IRU 6RFLDO	
('8&		&XUUHQW 7UHQGV 6SHFLDO (GXFDWLRQ	
('8&		&KDUDFWHULVWLFV RI ,QIDQWV 7RGGOHU' 1HHGV	
('8&		$VVHVVPHQW DQG ,QVWUXFWLRQ LQ (DUO\	
7RWDO IRU 0DVWHU R (GXFDWLRQ (OHFWLYH			XQLWV

0DVWHU RI 6FLHQFH LQ (GXFDWLRQ 'HJUHH SOXV 'XDO 7H 3URJUDP²3UHOLPLQDU\ (GXFDWLRQ 6SHFLDOLVW 0LOG 0R 6XEMHFW XQLWV
6WXGHQW 7HDFKLQJ 2SWLRQ

6HPHVWHU 2QH			
('8&		7HDFKLQJ IRU (TXLW\	
('8&		)RXQGDWLRQV RI 6SHFLDO (GXFDWLRQ	
('8&		7HDFKLQJ (QJOLVK /HDUQHUV	
('8&		8VLQJ 7HFKQRORJ\ LQ &ODVVURRPV	
('8&		3URJUDP 'HVLJQ DQG &XUULFXOXP 'HYHOR	
7RWDO 8QLWV			XQLW

[redacted]			

('8&		%HKDYLRU ,QWHUYHQWLRQ DQG 6XSSRUW	
7RWDO 8QLWV			XQLWV

6HPHVWHU 7KUHH			
('8&		3HGDJRJLFDO 3UHSDUDWLRQ ,	
('8&		6HFRQGDU\ 3UHSDUDWLRQ IRU 6XSHUYLVH	
('8&		$GYDQFHG &XUULFXOXP IRU 'LYHUVH /HDU	
('8&		7HDFKLQJ 3HUIRUPDQFH $VVHVVPHQW	
7RWDO 8QLWV			XQLW

6HPHVWHU)RXU			
('8&		3HGDJRJLFDO 3UHSDUDWLRQ ,,	
('8&		6HFRQGDU\ 6XSHUYLVHG 7HDFKLQJ	
('8&		6HFRQGDU\ 6XSHUYLVHG 7HDFKLQJ 6HPLQD	
('8&		63(' 6XSHUYLVHG 7HDFKLQJ	
('8&		63(' 6XSHUYLVHG 7HDFKLQJ 6HPLQDU	
('8&		7HDFKLQJ 3HUIRUPDQFH $VVHVVPHQW	
7RWDO 8QLWV			XQL

('8&		/LWHUDF\ $FURVV WKH &XUULFXOXP	
+&6		:RPHQ :RUN 3ROLWLFV DQG (GXFDWLRQ	
0%$		,QWURGXFWLRQ WR +XPDQ 5HVRXUFH 0DQD	
0%$		2UJDQL]DWLRQ DQG /HDGHUVKLS	
7RWDO 8QLWV			XQLW

5HTXLUHG EHIRUH RWKHU &RXQVHOLQJ 3V\FKRORJ\ FRXUVHV

)LIWHHQ XQLWV RI JUDGXDWH FRXUVHZRUN LQ 6SHFLDO (GXFDWLRQ DUH QHHGHG W

('8& 7HDFKLQJ 5HDGLQJ LQ (OHPHQWDU\ 6FKRRO XQLWV

3URYLGHV VXEVWDQWLYH UHVHDUFK EDVHG LQVWUXFWLRQ WKDW SUHSDUHV VWXG
(PSKDVLV RQ RUJDQL]LQJ V\VWHPDWLF LQVWUXFWLRQ LQ UHDGLQJ ZULWLQJ OLVW
OHDUQHUV LQFOXGLQJ VWUXJJOLQJ UHDGHUV VWXGHQWV ZLWK VSHFLDO GLIIHUHQFHV
6WDQGDUGV IRU (QJOLVK /DQJXDJH $UWV DQG /LWHUDWXUH DSSURSULDWH 5HDGLQ
6SULQJ VHPHVWHUV 65)DOO 8.

('8& (OHPHQWDU\ 3UHSDUDWLRQ IRU 6WXGHQW 7HDFKLQJ XQL

7KLV FRXUVH LQWHJUDWHV SUHYLRXV DQG RQ JRLQJ FRXUVHZRUN DQG SUHSDUHV
VFKRRO &DQGLGDWHV REVHUYH DQG SDUWLFLSDWH LQ D YDULHW\ RI HOHPHQWDU\
VWXGHQWV ZLWK VSHFLDO QHHGV 2EVHUYDWLRQV IRFXV RQ HQJDJLQJ DQG VXSSR
HQYLURQPHQWV IRU OHDUQLQJ

('8& (OHPHQWDU\ 6XSHUYLVHG 7HDFKLQJ 6HPLQDU XQLWV

,Q VHPLQDU IDVKLRQ FDQGLGDWHV GLVFXVV WKHLU WHDFKLQJ SHUIRUPDQFH UHOD
FROOHDJXHV &DQGLGDWHV GUDZ XSRQ DQG DSSO\ WKHLU OHDUQLQJ IURPDUQH

0``0pÅ`0ð•ÀF `€]0`}u•p

('8& 3HGDJRJLFDO 3UHSDUDWLRQ ,, XQLWV

6XSSRUWV VWXGHQW WHDFKLQJ RU LQWHUQ WHDFKLQJ ,QWHJUDWHV HGXFDWLRQD
DQG ZHEVLWHV ZKLOH XVLQJ D YDULHW\ RI LQVWUXFWLRQDO VWUDWHJLHV &DQGL
DFFRPPRGDWLRQ DQG PRGLILFDWLRQ SODQV GLYHUVLW\ LVVXHV LQ WKH FODVVUR
SURFHVV DQG KRZ WR XVH YDULRXV UHVRXUFHV LQ D PHDQLQJIXO DQG HIIHFWLYH
8.

('8& 6HFRQGDU\ 6XSHUYLVHG 7HDFKLQJ XQLWV

)XOO VHPHVWHU VXSHUYLVHG WHDFKLQJ DVVLJQPHQW LQ VLQJOH VXEMHFW FODVVU
XQLYHUVLW\ VXSHUYLVRUV $WWHQWLRQ JLYHQ WR WKH HGXFDWLRQ RI VWXGHQWV
8.

•6@`P @``ð
'LXVQ ‘0
6HFRQGDU\

35(/,0,1$5< ('8&$7,21 63(&,$/,67 &2856(6

('8& 8VLQJ 7HFKQRORJ\ LQ &ODVVURRPV XQLW

3UHSDUHV FUHGHQWLDO FDQGLGDWHV WR XVH LQVWUXFWLRQDO WHFKQRORJ\ LQ ZI
XVLQJ WHFKQRORJ\ WR PDNH VLJQLILFDQW FKDQJHV LQ WHDFKLQJ DQG OHDUQLQJ
JDWKHU SURFHVV DQG FRPPXQLFDWH LQIRUPDWLRQ WR VWXGHQWV)DOO 6SULQJ

('8& 6XSHUYLVHG 7HDFKLQJ LQ (OHPHQWDU\ RU 6HFRQGDU\ 6FKR

)XOO VHPHVWHU VXSHUYLVHG WHDFKLQJ DVVLJQPHQW LQ PXOWLSOH RU VLQJOH VX
DQG XQLYHUVLW\ VXSHUYLVRUV 7DNHQ FRQFXUUHQWO\ ZLWK ('8& 63(' 6XSHUY
(GXFDWLRQ 3URIHVVLRQDO 6WDQGDUGV &RPPLWWHH)DOO 6SULQJ 6HPHVWHUV 65

('8& 3URJUDP 'HVLJQ DQG &XUULFXOXP 'HYHORSPHQW XQLWV

&DQGLGDWHV OHDUQ DERXW ,QGLYLGXDO (GXFDWLRQ 3ODQ ,(3 GHYHORSPHQW DQ
PLOG PRGHUDWH OHDUQLQJ FKDOOHQJHV &DQGLGDWHV ZULWH D FRPSOHWH ,(3 LQ
DGDSWDWLRQV WR JHQHUDO HGXFDWLRQ FXUULFXOXP LQ RUGHU WR HQVXUH VWXG
UHJXODWLRQV WKDW SURYLGH HTXLW\ IRU VWXGHQWV ZLWK OHDUQLQJ FKDOOHQJH

('8&)RUPDO DQG ,QIRUPDO $VVHVVPHQW IRU 'LYHUVH /HDUQHUV

&DQGLGDWHV OHDUQ UHVSRQVLEOH DVVHVVPHQW SUDFWLFHV WKDW WDNH LQWR D
VHUYH)RUPDO DVVHVVPHQW WRSLFV LQFOXGH GLVFXVVLRQV RI WKH UHODWLRQVK
LQWHUSUHWDWLRQ RI VWDQGDUGL]HG DVVHVVPHQW LQVWUXPHQWV DQG LQWHUSU
SUDFWLFHV DQG ZULWH DSSURSULDWH JRDOV DQG REMHFWLYHV IRU ,(3V ,QIRUPDO
LQWHUSUHWDWLRQ RI LQIRUPDO PHDVXUHV VXFK DV ZULWLQJ SRUWIROLRV FXULF
REVHUYDWLRQDO GDWD FROOHFWLRQ $SSURSULDWH WUDQVLWLRQ SODQQLQJ IRU
6HPHVWHUV 65 6SULQJ 6HPHVWHUV 8.

('8& %HKDYLRU ,QWHUYHQWLRQ 6XSSRUW XQLWV

&DQGLGDWHV OHDUQ SRVLWLYH EHKDYLRUDO LQWHUYHQWLRQV DQG VXSSRUWV IRU
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('8& 3HGDJRJLFDO 3UHSDUDWLRQ ,,, XQLWV

7KLV XQLW SHGDJRJ\ FRXUVH LV GHVLJQHG WR EH WDNHQ ZKLOH REWDLQLQJ D VH
GXULQJ WKH ILQDO VHPHVWHU RI VXSHUYLVHG WHDFKLQJ RU DIWHU WKH FRPSOHW
ZLWK D FRQWHQW FRDFK LQ WKH DGGHG FRQWHQW DUHD ZKR ZLOO SURYLGH VXSSR
LQFRUSRUDWH HGXFDWLRQDO WKHRU\ ZLWK FODVVURRP H[SHULHQFHV WR FUHDWH
VWUDWHJLHV ,Q DGGLWLRQ WKH FDQGLGDWH FRQWHQW FRDFK DQG LQVWUXFWRU
DFFRPPRGDWLRQ DQG PRGLILFDWLRQ SODQV GLYHUVLW\ LVVXHV LQ WKH FODVVUR
SURFHVV DQG KRZ WR XVH YDULRXV UHVRXUFHV LQ D PHDQLQJIXO DQG HIIHFWLYH

('8& &XUUHQW 7UHQGV 3ROLF\ DQG &KDQJH XQLWV

7KLV FRXUVH H[SORUHV WKH KLVWRU\ RI $PHULFDQ HGXFDWLRQ WKURXJK WKH OHQ
GHYHORSPHQW DQG LWV HIIHFWV RQ VFKRRO GLVWULFWV DQG VFKRROV ZLOO EH
UHIRUP DFFRXQWDELOLW\ DQG IXQGLQJ 7KH FRQWULEXWLRQV PDGH E\ SROLF\ DQ
FRQVLGHUHG

('8& &XUUHQW 7UHQGV &KLOG $GROHVFHQW 'HYHORSPHQW XQLWV

7KLV FRXUVH ZLOO LQWURGXFH PDMRU WKHPHV DQG FXUUHQW LVVXHV LQ FKLOG D
DQG ZLOO LQFOXGH LVVXHV RI ERWK KLVWRULFDO UHOHYDQFH DQG FRQWHPSRUDU

4@ LFV RXQPô°Ð pÄäp€$°PôÐ p¤@„pÅ`0° 0ð€ÀÕ`pÀ p€p€ 0@@ ¤À€`€€À`pp0``0 •0Põ€€`ðÀÀ0•€ð

L LUoK PWDWHVXHH QQ@À``0 € H VVW RUVHSKDH VUHVXHIV WWDHMD FO

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LW HVqu0@ÀP€€0p°5Àpd@ÀP€Fp`IXQGLW R`0€`g €0 ZLO@ÀÀðÀÀÀp€„@0•DQ@ÀÀp…D Hô`W DH@ `ÀV
X ÐýP`0p Àðp€ZH ZLFH ð

+HDOWKFDUH /HDGHUVKLS 06 DQG +/HDGHUVKLS &RQFHQWUDWLRQ 0%$

7KH 06 LQ +HDOWKFDUH /HDGHUVKLS LV D JUDGXDWH EXVLQHVV GHJUHH WKDW IRFX LQGXVWU\ ,W LV WKH UHVXOW RI D XQLTXH FROODERUDWLYH HIIRUW EHWZHHQ WK 1DWXUDO 6FLHQFHV WR SUHSDUH VWXGHQWV ZLWK WKH FRPSHWHQFLHV PDUNHW G LQQRYDWH DQG WUDQVIRUP WKH KHDOWKFDUH LQGXVWU\

$V RQH RI WKH RQO\ FDPSXV EDVHG SURJUDPV RI LWV NLQG LQ WKH %D\ $UHD WKH SDUWQHUVKLSV 'RPLQLFDQ KDV FXUDWHG WKURXJK LWV UHQRZQHG ELRORJLFDO VF WKHUDS\ DQG SK\VLFLDQ DVVLVWDQW SURJUDPV 'HVLJQHG IRU ZRUNLQJ SURIHVVL FODVV VL]H KLJK IDFXOW\ LQWHUDFWLRQ DQG JXLGHG FDUHHU PHQWRULQJ

6WXGHQWV ZLOO JDLQ KDQGV RQ H[SHULHQFH QRW RQO\ LQ IXQFWLRQDO DUHDV RI PDQDJHPHQW DQG JOREDO EXVLQHVV EXW DOVR WKURXJK VWDWH RI WKH DUW FRX KHDOWKFDUH DQDO\WLFV DQG KHDOWKFDUH LQIRUPDWLFV 7KH SURJUDP FXOPLQD LQWHUQDWLRQDO WULS IRFXVHG RQ SURMHFW EDVHG OHDUQLQJ ZLWK KHDOWKFDU

:H DOVR RIIHU VWXGHQWV D XQLTXH RSSRUWXQLW\ WR HDUQ DQ 0%$ ZLWK D &RQFH GR VR

3URJUDP /HDUQLQJ 2XWFRPHV

6WXGHQWV ZKR FRPSOHWH WKH SURJUDP ZLOO EH DEOH WR

- /HDG LQ FOLQLFDO FRUSRUDWH SXEOLF DQG QRW IRU SURILW VHFWRUV
- ,QWHUSUHW DQG XVH GDWD IRU VRXQG PDQDJHULDO GHFLVLRQ PDNLQJ LQ WK
-)RUPXODWH LQQRYDWLYH VWUDWHJLHV WR SURPRWH RXWVWDQGLQJ KHDOWK
- ,PSURYH WKH ILQDQFLDO KHDOWK RI WKHLUð p°`@P€O GH SXDC33333333Ã333333Ã DQD

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0%$		*OREDO &RQVXOWLQJ 3UDFWLFXP	
7RWDO %XVLQHVV 5HT			XQLW
+/7+		+HDOWKFDUH (FRQRPLFV 0DUNHWV DQG 'H	
+/7+		+HDOWKFDUH 3RLFLHV /DZ DQG 5HJXO	
+/7+		+HDOWKFDUH $QDO\WLFV DQG &RQWLQXRX	
+/7+		,QQRYDWLRQ DQG ,QIRUPDWLFV LQ +HDOW	
7RWDO +HDOWKFDUH			XQLW
7RWDO +HDOWKFDUH			XQLW

+HDOWKFDUH /HDGHUVKLS &RQFHQWU 2SWLRQ 5HTXLUHPHQWV

6WXGHQWV PD\ HDUQ DQ 0%$ ZLWK D &RQFHQWUDWLRQ LQ +HDOWKFDUH /HDGHUVK WR WKH 06 GHJUHH SURJUDP UHTXLUHPHQWV WRWDOLQJ XQLWV IRU WKH 0%$ GH

0%$		2UJDQL]DWLRQDO %HKDYLRU DQG ([HFXWL	
0%$		*OREDO 6XSSO\ &KDLQ DQG 6XVWDLQDEOH	
0%$		&DSVWRQH	
7RWDO +HDOWKFDUH			

'RPLQLFDQ 8QLYHUVLW\ RI &DO

*UDGXDWH (GXFDWLRQ 'HJUHH 3
*HQHUDO DQG $GPLVVLRQV ,QI
$FDGHPLF &DWDORJ ¬

*UDGXDWH (GXFDWLRQ 'HJUHH 3URJUI

%LRORJLFDO 6FLHQFHV 06

7KH 0DVWHU RI 6FLHQFH LQ %LRORJLFDO 6FLHQFHV LV D UHVHDUFK LQWHQVLYH SU
RI RXU WLPHV 7KH SURJUDP V JRDO LV WR WUDLQ VWXGHQWV IRU VFLHQWLILF FDU
SURFHVV DV ZHOO DV GHWHFWLQJ SUHYHQWLQJ DQG WUHDWLQJ DJH DQG PHWDE

%,2 *UDGXDWH 7HDFKLQJ $VVLVWDQW XQLWV

7KLV FRXUVH SURYLGHV WHDFKLQJ H[SHULHQFH DW WKH JUDGXDWH OHYHO 6WXGH
FDQ LQFOXGH EXW LV QRW OLPLWHG WR VHUYLQJ DV LQVWUXFWRU RI UHFRUG IRU
FRQGXFWLQJ UHYLHZ VHVVLRQV SUHSSLQJ ODEV DQG WXWRULQJ VWXGHQWV